



FIELD MANUAL

**MINE AND TUNNEL DOG
TRAINING AND EMPLOYMENT**

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MOS ADDITIONAL SKILL IDENTIFIERS

(AR 611-201)

The MOS additional skill identifier for an 11B infantryman employed as a mine/tunnel dog handler is P9.

The MOS OOC, Dog Trainer, designates a primary skill as an instructor in military dog training. The MOS additional skill identifier for OOC in mine/tunnel dog training is P9.

COMMENTS ON MANUAL

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MINE AND TUNNEL DOG TRAINING AND EMPLOYMENT

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CHAPTER 1

GENERAL

1. Purpose

This manual is a guide for Army personnel charged with the training and employment of mine and tunnel dog teams. When combined with other applicable manuals and programs of instructions, this manual forms the basis for conduct of a formal program for the training of mine and tunnel dogs and handlers. Additionally, this manual provides guidance for commanders and staff officers in the capability, limitations, and tactical employment of mine and tunnel dog elements in infantry operations.

2. Scope

This manual covers the general and specialized aspects of the training and employment of mine and tunnel dogs and handlers.

Note. FM 20-20, Basic Care and Training of Military Dogs, is a prerequisite to this manual relative to dog training.

3. Mine and Tunnel Dog Team

The mine and tunnel dog team consists of one trained German Shepherd mine and tunnel dog and one school-trained handler. Most of the information in this manual deals with the training and employment of this element. Mine and tunnel dog teams can be grouped with administrative, technical, and command and control personnel to form squads of composite tactical dog platoons. A detailed discussion is contained in chapter 7.

4. Mission

The mission of the mine and tunnel dog team is to support infantry and combat engineer operations by detecting casualty-producing devices and other enemy equipment and/or demolitions.

5. Capabilities

The mine and tunnel dog's training and superior sense of smell enables it to detect a wide variety of foreign devices and equipment. When com-

bined with the handler's ability to interpret his dog's responses and judge their significance, the man-dog team can provide the commander with—

- a. Positive detection of recently emplaced mines of all types.
- b. Positive detection of boobytraps and tripwires.
- c. Positive detection of tunnels and caches.
- d. Warning of minefields or boobytrapped areas, and their boundaries.
- e. Detection of mines missed by other mine detectors, and/or confirmation of their finds.

6. Evolution of the Concept

a. The mine and tunnel dog is a relatively recent development of the military use of dogs. In the summer of 1943 the Quartermaster Corps Remount Branch began experimenting with war dogs as mine detectors. This resulted in the activation of the 238th Engineer Mine Detection Company (Dog) on 17 December 1943. Shortly thereafter the 36th Quartermaster War Dog Platoon was activated. In the early fall of 1944 the 238th deployed to North Africa and the 36th deployed to the Mediterranean Theater. Due to a lack of knowledge of animal behavior, training and employment techniques, the concept failed to work in combat. Both units were deactivated in October 1944 and the program was abandoned. Parallel efforts by the British and Germans met with similar lack of success.

b. Major usage of casualty-producing devices in Southeast Asia prompted a renewal of interest in the mine dog concept. In May 1967 the Chief of Research and Development asked the US Army Limited War Laboratory (USALWL) to determine the feasibility of the concept. By developing new training techniques, USALWL demonstrated feasibility of the concept in July 1968. The 60th Infantry Platoon (Scout Dog) (Mine and Tunnel Detector Dog) was activated in

August 1968, and deployed to the Republic of Vietnam in April 1969 for field evaluation. The combat success of these and later dogs resulted in the mine and tunnel dog being added to the Army's canine inventory. The US Army Infantry School was given responsibility for the program in July 1970, and has refined the concept to its current state.

7. Training Responsibilities

The US Army Infantry School has responsibility for training instructors, leaders, handlers and dogs in the mine and tunnel dog program.

8. Command Responsibilities

Commanders are responsible for the proper employment, handling, care, and continued training of mine and tunnel dogs assigned or attached to their units.

CHAPTER 2

MINE AND TUNNEL DOG TEAM TRAINING

Section I. SCREENING DOGS FOR TRAINING

9. General

The mine and tunnel dog is a specialized infantry tactical dog. As such, it requires a certain combination of traits to be suitable for this type of work. The term *screening* refers to the procedure used to classify dogs for the type of military service for which they seem best qualified. This classification is based on observation of the physical and psychological traits manifested by the dogs from the time they are given the test on arrival at reception and training centers, throughout the basic training period, and even after they have begun specialized training. It is important to continue observing the dogs throughout the training program. The potentialities of some dogs, and inherent weaknesses of others, may come to light unexpectedly. The dogs are observed by a classification board consisting of the commanding officer and selected instruc-

tors. On the basis of physical and psychological traits manifested, the board may reject a dog at any time during training.

10. Selection for Type of Specialized Training

The classification board has the responsibility for deciding which dogs will be trained as mine and tunnel dogs and which will be trained for other duty. The selection is based on consideration of the demonstrated qualities of a dog as measured against the requirements for the several types of duty. Mine and tunnel training requires dogs possessing a high degree of intelligence, stable temperament, curiosity, and a low degree of aggressiveness. Dogs that qualify best in these traits may be selected for mine and tunnel training. If, during training, a dog shows that it isn't suitable, it is rejected or transferred to another type of training.

Section II. PRINCIPLES OF TRAINING

11. General

Basic dog training is an end in itself. It serves to develop in dogs and behavior that is essential to efficient and effective training for specific military functions. A dog that successfully completes basic training is disciplined and prepared to receive instruction in its particular military duties. Furthermore, its behavior during basic training, if properly observed, is a further indication of the type of specialized training for which it is best suited.

12. Scope

a. Training the dog for its functions begins immediately after obedience training. This training is subdivided into basic, intermediate, and advanced detection training.

b. In basic detection training emphasis is placed on the dog-handler relationship, teaching

the handler to *read* his dog, and teaching the dog to alert on different type targets (or objects).

c. In intermediate detection training the dog and handler begin finding partially concealed mines, boobytraps, and tripwires.

d. In advanced detection training the team is exposed to the full range of hidden targets over varying terrain under simulated combat conditions.

13. Statement of Principles

The effectiveness of specialized dog training depends on the following fundamental principles:

a. *The General Attitude of the Handler is Important.* A handler must fully realize the importance of the work that he is doing. He must understand and appreciate the fact that dogs are

used to conserve manpower, conserve life, and to further the work of the military service through the use of the dog's innate abilities.

b. The Importance of the Handler-Dog Relationship. The dog and handler must work as a team. Therefore, no handler must be forced to train an animal that he deems unsuitable. For the same reason, if a dog appears unwilling to serve a certain handler, it may be necessary to assign it to another handler. However, once a team has been established, the relationship should be maintained. Only the handler should praise, feed, or otherwise handle his dog.

c. Association of Ideas Facilitates Learning. Where special equipment is used, the dog must learn to associate this equipment with its work.

d. Motivation. The dog should be motivated not only by food, or by praise and petting, but also by the goal of accomplishing a mission. The dog can and should be trained to complete a

task as an end in itself, not simply for the sake of reward by the handler. In all training, therefore, the dog must be permitted to finish every exercise successfully, no matter how many errors it makes. The dog must *always* succeed.

e. Terrain, Distractions. Conduct training over varying terrain and near gunfire and other distractions to develop the dog's responsibility for given tasks and to insure the accomplishment of its mission.

f. Review of Previous Training Maintains and Raises the Level of Performance. Handlers must use their best judgment in determining how often previously learned exercises should be repeated.

g. Successful Training of Mine and Tunnel Dogs Depends on their Care. Unless the dogs are kept in good health, properly groomed, fed, and kenneled, the effectiveness of the training program will be diminished.

Section III. TRAINING REQUIREMENTS

14. General

Most types of military dog training require an unusually high instructor-student ratio. Except for obedience training, nearly all practical training must be conducted on an individual basis. The primary reason for this is the fact that the instructor/trainer will normally be training students with untrained dogs. Since the dog cannot understand verbal instruction, the instructor/trainer must "filter" his instruction to the dog through the medium of a student who is himself untrained. This unique aspect of military dog training demands an unusually high degree of expertise and patience of the instructor/trainer. Other reasons include the breadth and types of terrain over which instruction is conducted, and the fact that each student team must be worked individually on uncontaminated training lanes. It is therefore necessary that sufficient qualified personnel be available to permit the assignment of one instructor/trainer to three student/dog teams (in effect, one instructor to six "students"). To provide realism, insure troop and dog safety, and achieve the requisite technical proficiency, this ratio should be maintained as closely as possible.

15. Instructor/Trainers

Note. The instructor/trainer is so termed because he both instructs students and trains dogs, skills which are integrated yet distinct. For simplicity, he will hereafter be referred to as an instructor.

Responsibility for conducting mine and tunnel dog team training should rest with qualified military dog instructors. Whenever possible they should have previous experience in mine and tunnel dog training. When a shortage of qualified instructors exists, experienced mine and tunnel dog handlers may be used as assistant instructors. This is not, however, desirable as few handlers have the depth of experience necessary to cope with the many training and motivational problems that inevitably develop in training mine and tunnel dog teams.

16. Handlers

A mine and tunnel dog team consists of one mine and tunnel dog and its handler. (Handler students must meet the requirements discussed in FM 20-20.) The handler is responsible for the daily care and grooming of his dog and the maintenance of its kennel area. Since a strong bond of affection between dog and handler must be established and maintained, each handler should be assigned only one dog, and he should retain that animal until they graduate as a team or until one of them is eliminated from the training program.

17. Dogs

Sufficient dogs must be available so that there is one for every student to be trained. In addition, a number of dogs equal to at least 10 percent of

each student class should be available. In any given group, a number of students and dogs will not be psychologically or motivationally compatible, thus, sufficient excess dogs must be available to allow for proper *mating* of handler and dog.

18. Equipment

Mine and tunnel dog handlers require the following equipment in addition to their normal field gear:

- a. Choke chain collar.
- b. Leather collar.
- c. Five-foot and 25-foot leashes.
- d. Harness.
- e. Feed pan.
- f. Kennel or stake out chain.
- g. Intrenching tool.
- h. Whistle.
- i. A pouch or bag for carrying food.*

*Note. The military construction worker's apron (fig 1) is ideal for this purpose, although ammunition pouches or other items which can be secured to the web belt are acceptable.

19. Terrain

All infantry tactical dog training requires large areas of terrain. Fifty student mine and tunnel dog teams, for example, require a minimum of 5,000 areas of training area. A good rule-of-thumb is to multiply the number of teams by 50 acres, and then double or triple this figure to

allow for rotation. There are three primary reasons for these large terrain requirements:

a. *Contamination.* The majority of mine and tunnel dog training is conducted on training lanes. After several days in one area, these lanes become contaminated by human and animal scents, and by the numerous holes dug and re-filled. Areas should be rotated twice weekly to allow the scent to dissipate, the vegetation to recover, and to prevent the dogs from becoming too familiar with a given area.

b. *Safety and Proximity.* Since nearly all mine and tunnel dog training is conducted in the off-leash mode, the teams in training must be dispersed to prevent the possibility of injury to personnel or dogs by dog fights. In addition, training lanes must be far enough apart so that a team working one lane is not distracted or interfered with by a team on another lane.

c. *Diversification.* The mine and tunnel dog team must be trained to operate effectively over any type of terrain. For this reason, maximum use must be made of the terrain diversity in any military training area. Ideally, basic detection should be conducted over relatively open, level terrain. As the complexity of training progresses, so must the complexity of the terrain. The final stages of advanced detection training should be conducted over the most difficult terrain available, making maximum use of hills, streams, woods, and natural and manmade obstacles. A final point is that, where feasible, training should be conducted in an area which resembles the area to which the teams are to be deployed.

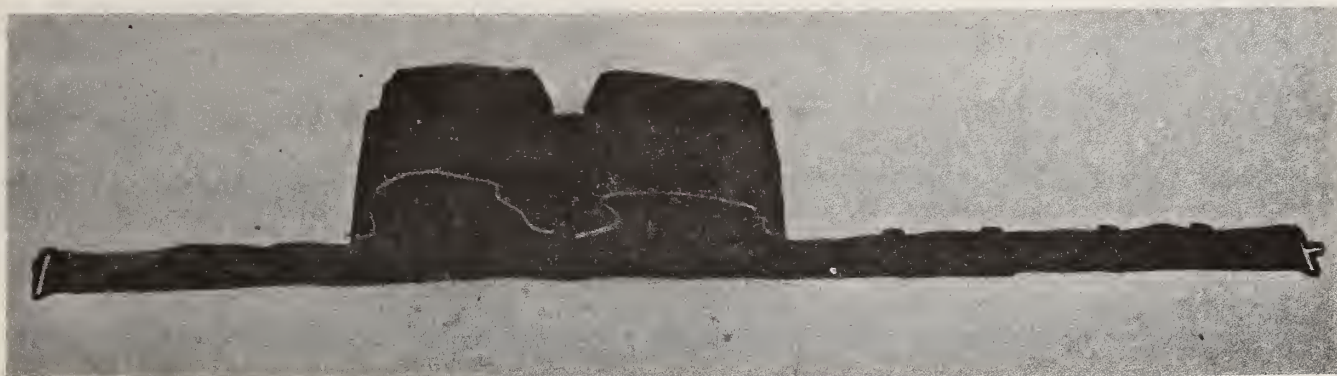


Figure 1. Military apron used to carry food for dog.

CHAPTER 3

THE FOOD-REWARD METHOD

Section I. INTRODUCTION

20. General

There are two basic methods used in the training of military dogs, the praise-punishment method and the food-reward method. Both methods make use of the principle of reward for performance and punishment for nonperformance or misbehavior.

a. Praise-Punishment Method. This is the traditional method used by animal trainers. Simply stated, when the dog successfully performs some task it is rewarded by praise and petting. When it fails to perform, or misbehaves, it is punished by verbal disapproval and physical discomfort or mild pain. This method is most effectively used where highly disciplined dogs are required, and in training military dogs which must be highly aggressive.

b. Food-Reward Method. This method is relatively new to military dog training, although it has long been used by animal behaviorists. It is also referred to as behavioral conditioning, stimulus-response training, or operant conditioning. In this method, the animal is conditioned to associate the performance of a task or the presence of a particular object or odor with the appearance of food and praise. The dog learns that performing a task, such as locating an object or scent, will bring the food reward and praise. Here the food-reward method departs from the traditional method in that it advances the degree of subtlety. Failure to perform a given task, rather than bringing physical punishment, brings only the absence of food. This may seem overly simple, but since food is, after sex, the most important motivation to the dog, the method is extremely effective. This method is most effectively used in training military dogs which must perform a large variety of unrelated tasks, or where the task to be performed is quite complex or difficult. One important advantage of this method is that, out of a given group of untrained dogs, a larger percentage can be success-

fully trained, to a higher overall degree of proficiency, in less time than by the praise-punishment method.

21. Food

Two types of food are necessary for successful use of the food-reward method:

a. Training Food. This is the food given the dogs as a reward for performing some task. For this purpose a commercially-prepared soft-moist dog food (FM 20-20) in the form of cubes or large pellets is used. The cubes must be easily handled and must not crumble when handled. Each handler will require 1 to 2 pounds of training food for his dog each training day.

b. Goal Food. Goal food is a key factor in the use of the food-reward method. This food is given after the last work session if the dog has performed well. For this purpose, use a commercially-prepared, meat-base canned dog food which is especially appetizing. At the completion of the last work session of the day, the dog is given the remainder (if any) of its prescribed daily ration of training food plus the canned food. If a dog has not performed well that day, *it receives no goal food!* (Goal food is not given on nonworking days.) The dogs quickly learn that they must perform well each day in order to earn their goal food. **REMEMBER: THE KEY TO USE OF THE FOOD-REWARD METHOD IS THAT THE DOG RECEIVES ONLY THE FOOD THAT IT EARNS! THE DOG IS NEVER GIVEN FREE FOOD.**

22. Preparation

Prior to introducing a dog to the food-reward method, it is first necessary to deprive the dog of food for 48 hours. This is normally done over a weekend. By doing this, the dog's hunger will increase its motivation to learn. During training, the dogs are also partially deprived on weekends

and other nonworking days. Depending on each dog's food requirements, appetite, and motivation, it may be given full ration (minus goal food) on Saturdays and half-ration on Sundays or half-ration on Saturdays and no ration on Sundays.

23. Veterinary Supervision

Close coordination with and supervision by the station veterinarian is necessary when using the food-reward method. No dog should undergo the preparatory food deprivation until the veterinarian has insured that the dog's state of health will allow it. Due to variations in motivation and appetite, some dogs will gain or lose weight during training. Close coordination with veterinary personnel will prevent excessive weight loss or gain. If a dog is unable to learn quickly enough to earn its minimum daily ration, it should be eliminated from training.

24. Training Pens

Although not essential, training pens facilitate the introduction of the food-reward method by isolating each team while working and by reducing the amount of training area required. There

should be one pen per five teams in training; when necessary, up to ten teams can work with one pen, but the number of trials per team will be reduced. Each pen (fig 2) should be constructed of any fence post material and 48-inch chicken wire. Dimensions should be 10 feet wide by 20 to 30 feet long. One end should have a simple gate in it. If pens are unavailable, conditioning must be performed with the dogs on leash.

25. The Reinforcer Word—Good

The word "Good" is used throughout training as a reinforcer to inform the dog that it has performed an expected task properly and/or that food is about to appear. "Good" is called a reinforcer, not a command, since it is normally given in a low-to-moderate, pleased tone of voice rather than in a commanding tone. Food is the other reinforcer for training purposes. ("Good" and food are called positive reinforcers; punishment is a negative reinforcer.)

26. Conditioning of "Good"

Each handler should wear his apron filled with training food. The apron is worn at the waist, in front of or on the right side (fig 3). The handler

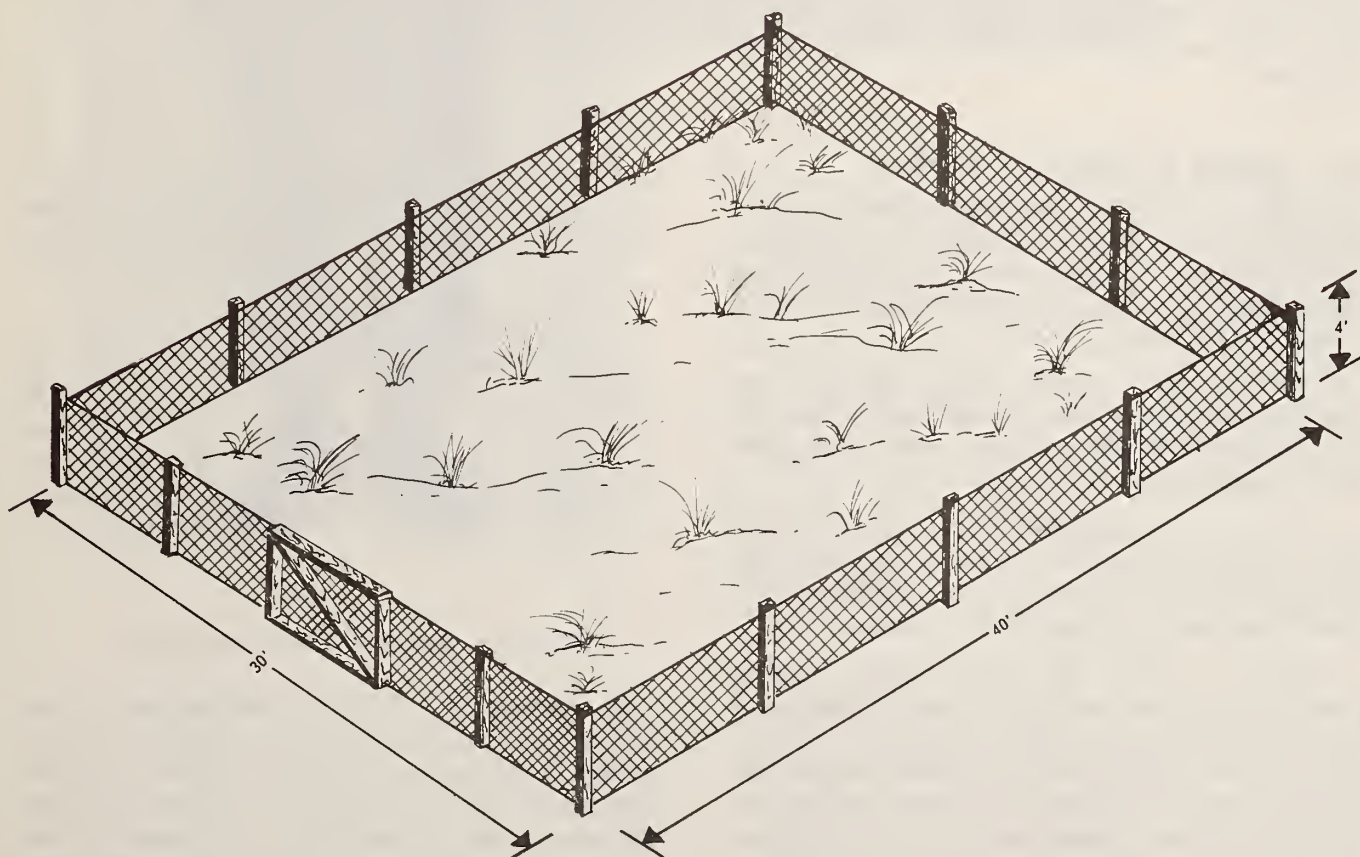


Figure 2. Training pen.

will take his dog into the pen, close the gate, and remove his dog's leash. The dog is allowed to roam about the pen for a few minutes to accustom itself to its surroundings. The handler then begins the conditioning to "Good."

a. Step 1. Whenever the dog is near the handler, and especially if it is looking at him, the handler says "Good;" $\frac{1}{2}$ second later he takes a cube of food from his apron and places it in his dog's mouth (fig 4).

Note. Timing is essential during this and all future stages of conditioning. The procedure must *always* be: "Good;" $\frac{1}{2}$ second pause, appearance of food. The handler must not give the dog any cue or signal, such as reaching toward the apron or bending over before the word "Good" is said. This procedure is continued for several trials, until the dog starts watching its handler and waiting for food, or otherwise exhibits what is termed "begging behavior."

b. Step 2. The handler waits until his dog looks or moves away from him before saying "Good," followed $\frac{1}{2}$ second later by food as before. When the handler is sure his dog is responding to "Good" and not other signals, such as various body movements, he can begin "shaping" his dog's responses. Conditioning of "Good" is considered complete when the handler can "shape" the dog to move away from him with the word "Good." Training time for the average dog is five or six trials, each lasting 10 to 15 minutes.

27. Exercise in Shaping Procedure

a. Step 1. To shape the dog's behavior into a certain response, such as moving away from the handler, he says "Good" whenever his dog looks away from him until the dog repeats "looking away" consistently.

b. Step 2. The handler waits until his dog makes a slight move away from him before saying "Good," and continues this until the dog repeats "starting to move away."

c. Step 3. The handler waits until his dog takes a step away, then several steps, or until the dog moves 4 or 5 feet each time, before saying "Good" and have the dog return for food.

d. Step 4. When the dog repeats "moving away," the handler may wait to say "Good" until the dog moves in a desired direction. The instructor must insure that the handler doesn't expect too much of his dog at one time. The handler will have to wait a long time for his dog to accidentally go to the right spot in the pen. He will have to wait again to get his dog to continuously go to that spot, and he must expect only slow re-



Figure 3. Handler wearing military apron.

sults. During this phase of training some dogs will become quite confused, and many will constantly hesitate until they are sure they are performing the correct action. Many handlers will also become impatient or discouraged during this period, especially if they see other handlers' dogs progressing faster than their own. The instructors must constantly remind the handlers



Figure 4. Placing food in dog's mouth.

that each dog progresses at its own pace and encourage them to be patient. If a handler becomes disgusted or loses his temper, any benefit from that day's training may be lost.

e. Steps 5 and 6. One good technique for getting the dog to move to a certain spot in the pen is to "divide" the pen into progressively smaller sections. The handler should stand in the center of the pen. He may then reinforce his dog only when it is in that half of the pen to his front

(fig 5). Next, he may reinforce his dog only when it is in one quadrant (fig 6), and so forth until the dog continuously moves in only one direction. The handler constantly withholds reinforcement until his dog gets a little closer to the desired spot, and expects a little more each time. Once the handler has his dog going to a particular spot, he must never reinforce his dog for doing less, such as going only halfway to the spot. Training time for the average dog is two or three 10 to 15 minute sessions.

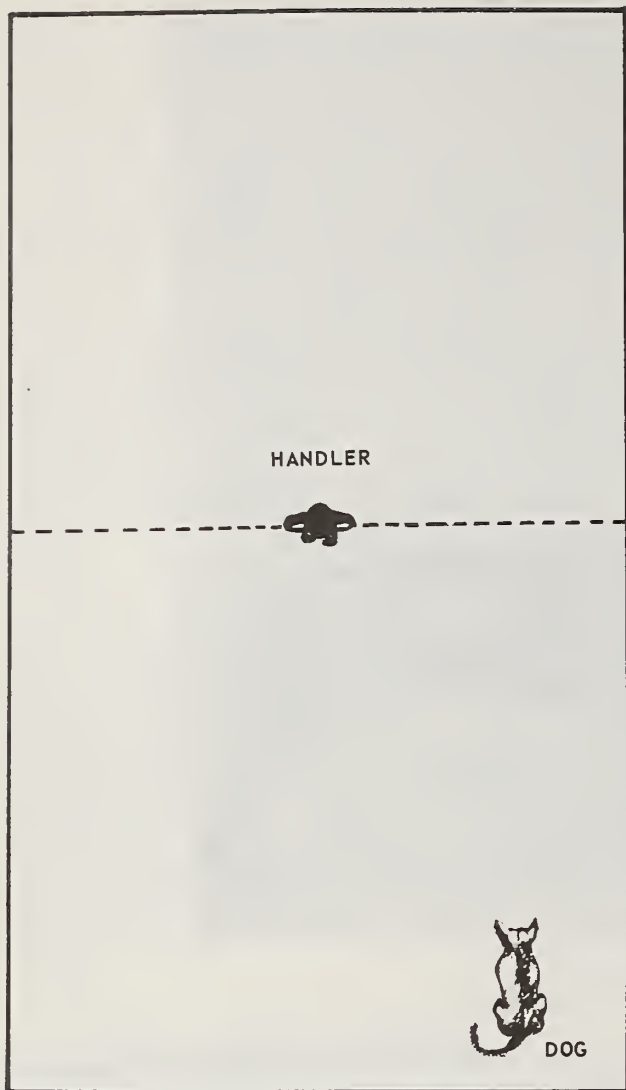


Figure 5. Dividing pen (training facility), dog in one half of pen.

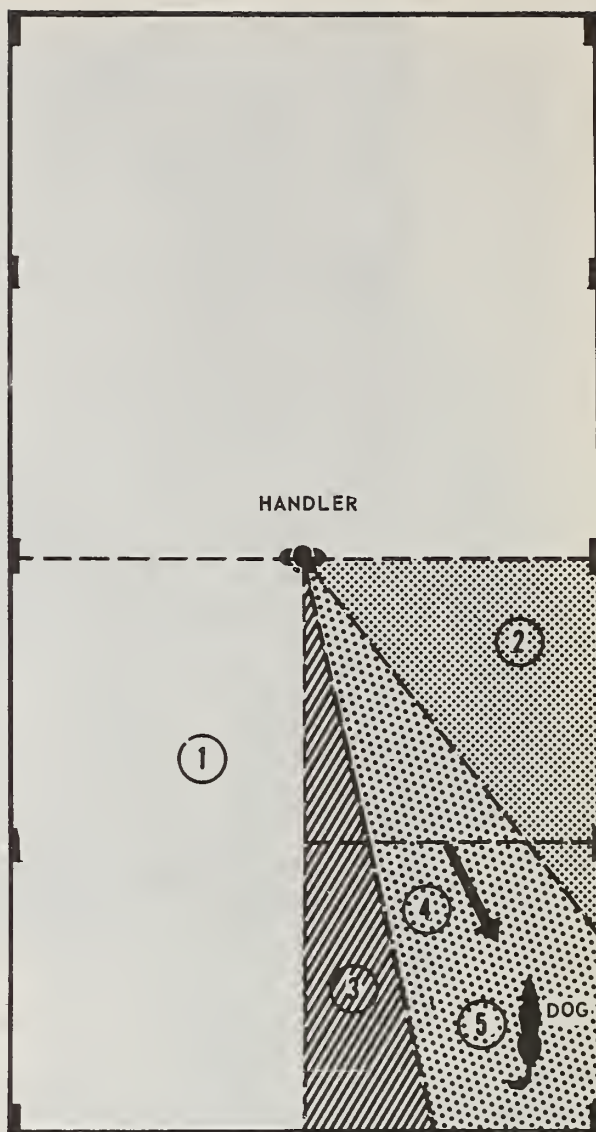


Figure 6. Dividing pen, quadrant.

Section II. THE SEARCH CHAIN

28. General

The search chain (fig 7) is a sequence of events whereby the procedure outlined in paragraphs 20 through 27 is used to shape the dog's behavior toward some practical task (e.g., obedience exercise, finding people, boobytraps, and the like). In the same manner as the dog's behavior was shaped to go to a particular spot in the pen, it can be shaped to perform almost any desirable action.

29. Basic Search Chain

The basic search chain can be diagrammed as an

unvarying, continuous sequence of simple events as follows:

$$S_1 + R_1 \rightarrow Rf_1 \rightarrow S_2 + R_2 \rightarrow Rf_2 \rightarrow$$

As an example, the above sequence can be read as, "The First Stimulus (S) (a feed pan) plus the First Response (R) (going to the feed pan) leads to the First Reinforcer (Rf) (Good + food) which leads to the opportunity to go to the feed pan again which leads to "Good" + food which leads to ----"

30. Pairing

The primary purpose of the search chain is to

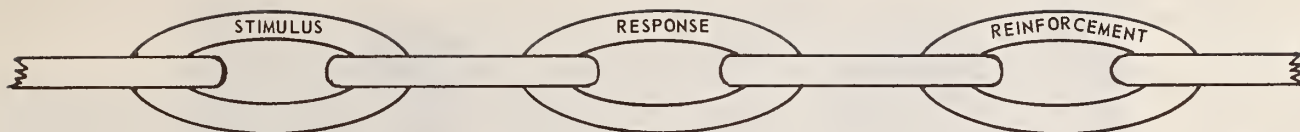


Figure 7. The search chain.

provide a basic stimulus (S_1) which can be associated or "paired," with practical actions to teach the dog, in smooth steps, its job of finding people and objects. Simply stated, the basic stimulus (S_1) is paired with a new stimulus (S_2) until the dog responds to both. S_1 is then faded out of the picture until the dog responds only to the new stimulus. As an illustrative example, S_2 will represent a strange person or object, and R_2 the dog's response, which may be looking suspiciously at an object or alerting. Incorporating these new factors into the basic search chain, the procedure will look like this:

$$S_1 + R_1 \rightarrow Rf_1 \rightarrow S_{1,2} + R_{1,2} \rightarrow Rf_2 \rightarrow S_{1,2} + R_2 \rightarrow Rf_3 \rightarrow S_2 + R_2 \rightarrow Rf_4$$

which can be read as "the presence of the feed pan + the dog going to the feed pan brings food; this leads to the presence near the feed pan of S_2 ; the dog going to the feed pan and alerting on S_2 brings food; this leads to S_2 near the feed pan; the dog alerting on S_2 brings food; this leads to the presence of S_2 without the feed pan; the dog alerting on S_2 brings food." By using this "pairing" procedure, any number of new actions or objects can be introduced to the dog in a short period of time.

31. Basic Search Chain Procedure (10 Steps)

a. Step 1—Orientation on Feed Pan. Before taking the dog into the pen, place a pan with water and an empty pan at the far end of the pen, so the dog can drink when it wishes. One man, called the "dropper," with food in an apron, will stand behind the pan (initially this should be an assistant instructor; later another handler can do this). The handler takes his dog into the pen and stands 6 to 12 feet from the pan, facing the dropper (fig 8). The dropper will take one cube of food at a time, hold it at about waist height (fig 9), and drop it into the pan so that it makes an audible "plunk," or noise.

Note. The dropper should first practice this so that the cubes will not bounce out onto the ground. Any food which falls to the ground, at any time, must be picked up and discarded. Otherwise the dog will look for this "free food" rather than pay attention to its work.

As quickly as the dog eats a cube, another is dropped. After five to six trials, the dropper halts and waits *until the dog looks into the pan* (orients) before continuing. Timing is important. The food must be dropped as the dog's head is going down to the pan, NOT when it is coming up. This procedure, if properly followed, will soon cause the dog to look into the pan as soon as it has eaten the previous cube. Orientation is considered complete when the handler takes his dog to the pan and it immediately orients on the pan. Training time for the average dog is two 10- to 15-minute sessions.

b. Step 2—Recall Training. Begin this session with a quick review of step 1. The handler should begin by standing about 2 feet from the pan. The dropper will drop one cube of food. After the dog eats the food the handler recalls it by giving the command (Dog's name) COME. Some dogs will want to stay at the pan, and it may be necessary to take the dog by the collar with the left hand, gently lead it two or three steps away from the pan, and turn to the right to face the pan again. *As the handler begins his turn to the right*, the dropper drops a cube in the pan. At the same time the handler releases his dog which, hearing the noise (plunk), should go to the pan and eat. This process will normally be repeated three to four times before the dog starts returning without assistance. Each time the handler allows 3 to 4 seconds between his command and his movement to guide the dog. Initially, the sound should be heard as the dog's head is passing the handler's *right* leg (fig 10); at this point the handler insures that the dog continues around behind him and goes to the pan from his left (heel) side. To do this he may have to start by grasping the dog's collar with his right hand until the dog's head is behind him, then bend and change hands, releasing the dog with his left hand as the dog passes the heel position (fig 11, 12, 13). When the handler has his dog returning satisfactorily without assistance, the dropper begins delaying until the dog moves a few inches farther around the handler, and continues delaying (with about five trials at each stage) until the food is hitting



Figure 8. Orienting the dog on the feeding pan.

the pan just as the dog reaches the heel position. The dog is allowed to pass the heel position without being stopped. Recall training in the search chain is complete when the dog returns to its handler on command and is being reinforced as it passes the heel position on its way back to the pan (fig 14). The dog should perform a minimum of 10 trials before going on to the next step in the search chain. Training time for the average dog is four to six 15-minute sessions.

c. Step 3—Stay at Heel Position. Begin by reviewing step 2. On about the fourth trial, the handler catches his dog's collar with his left hand as the dog is just to his left rear and holds it at the heel position (fig 15). The dropper delays dropping the cube *just until the instant the dog stops straining at the collar*. When the dog stops at the heel position with little or no pressure on its collar, the handler can stop holding his dog. Make sure, however, that the food

is still dropped at the moment the dog stops at the heel position, until it has stopped on its own for eight to ten trials without breaking the search chain. The dropper can then delay by fractions of a second over 10 to 15 trials until the dog is staying at heel for several seconds. Stay at the heel position is complete when the dog stays at heel for about 5 seconds before being reinforced, without breaking the search chain, and without the handler's assistance. Training: two to three 15-minute sessions.

d. Step 4—Moveout Command. (The command MOVEOUT, given in a low, firm voice, will be used to initiate nearly all future training exercises; it is also used to initiate operational patrols or exercises.) Review steps 1 to 3 as needed. After several trials of step 4, the handler gives the command MOVEOUT, accompanied by the moveout arm gesture. This gesture is accomplished by using the right hand and arm



Figure 9. Dropper's position.

in a casting motion. With the fingers extended and joined, the right forearm is brought forward and up from the side until the fingers are pointing nearly straight up (fig 16). Continuing in a smooth motion, the forearm is brought smartly forward until the elbow is locked, with the arm parallel to the ground at shoulder height (fig 17). (REMEMBER: sloppy gestures produce sloppy performance by the dog.) The moveout command is given as soon as the dog sits; at the moment the moveout signal is complete, the dropper reinforces. This continues until the dog starts moving out on command, instead of waiting for reinforcement (10 to 15 trials). The dropper will then start delaying reinforcement until the dog is a few inches closer to the pan, and continues this procedure until he is reinforcing when the dog reaches the pan. This step is considered complete when the dog sits, waits for the moveout command, and goes to the pan before being reinforced (at least 10 trials). Training time for the average dog is two 15-minute sessions.

e. Step 5—Reorientation on the Pan. Review the previous step, then begin reinforcing when the dog looks at the pan, even though it may be several steps away (five to six trials). Some dogs will orient on the dropper at this stage and won't look in the pan. If the dog is losing interest in the chain of events, the dropper can silently place a cube in the pan as the dog is returning to its handler. This should cause it to look in the pan when it approaches, and the dropper can start reinforcing the pan orientation. This step is complete when the dog orients on the pan for 10 to 15 trials. Reorientation time averages two 15-minute sessions.

f. Step 6—Sit at the Pan. Review previous step. At about the fourth trial the handler gives the command SIT just as the dog is orienting on the pan and before its head comes up. The moment the dog sits it is reinforced, even though it may not be looking at the pan as it sits. If the handler giving the command interferes with the dog's position at the pan (the dog may want to face its handler), the dropper can give the command. After five to six trials the dog should orient on the pan and sit without command. If the dog fails to orient before sitting, the dropper may have to reinforce orientation for a few trials. Training time averages two to three 15-minute sessions.

g. Step 7—Reorientation After Sit. Review previous step and then wait to reinforce until the dog looks back at the pan. The dog may lose interest after one or two trials and return



Figure 10. Food pellet dropped into feeding pan as dog passes handler's right leg.

to its handler to start again, but it should at least glance in the direction of the pan after sitting on the second or third trial. It can then be reoriented on the pan. Reorientation is considered complete after 15 to 20 successful trials. Training time: two to three 15-minute sessions.

Notes. 1. Notice that in the last several training steps, the dog was reoriented to the pan following the intro-

duction to the new action. This procedure will continue into further stages of training.

2. When working the search chain, keep in mind that the dog must successfully complete *each* step in the chain in order to be reinforced. If it omits any step it is required to begin the trial again. Some dogs will try to take short cuts to get reinforced, such as remaining at the pan to get more food without working for it. The dog soon learns that this doesn't work, and it returns to the



Figure 11. Step 1—handler guiding dog to heel position (right hand).

search chain. Sometimes a dog will fail to stop at heel when it should, but again it is not reinforced; it is required to start again, and it learns that stopping at heel is the only action that will "turn on" reinforcement.

3. A common problem instructors must be alert for is that of handlers attempting to advance their dogs along the search chain too quickly. This will only confuse the dogs. Another pitfall is trying to teach a dog two tasks (e.g., orienting and sitting) at the same time. Again,

most dogs will only become confused and quit working. This often causes the handler to believe his dog is stupid or lacks motivation.

h. Step 8—Reconditioning of Reinforcer "Good." In preparation for elimination of the dropper, the dogs must first be reconditioned to "Good" (i.e., "Good" will replace the noise at the feed pan indicating the appearance of



Figure 12. Step 2—handler continues guiding dog to heel position (both hands).

food). Review step 7; when the dog orients on the pan after sitting, the dropper reinforces with "Good," waits $\frac{1}{2}$ second, then takes a cube of food, quickly places his hand, palm up, inside the pan and allows the dog to eat the cube. Since the dog has previously been conditioned to "Good," it should quickly learn that the voice sound "Good" has replaced the noise at the feed pan as the signal that produces food. Reconditioning should average two 10-minute sessions.

i. Step 9—Elimination of the Dropper. Review step 8. The handler will now take over the role of reinforcing his dog. When his dog orients on the pan after sitting, the handler reinforces with "Good," steps up to the pan and places his hand, palm up with food, into the pan, allowing his dog to eat the cube. When starting this procedure the handler should stand about 2 feet to his dog's rear. He will alternate to his dog's left and right sides when reinforcing. This maintains the dog's position relative to the pan. The



Figure 13. Step 3—handler completes guiding dog around (left hand).

dropper will be standing in his usual position until it is determined that the dog has learned his reinforcement is coming from his handler. The dropper then takes one step back from the pan, every two or three trials until he is out of the immediate training area. The handler and dog should be moving back to their starting point at the same time.

Note. After the dropper has been eliminated from the search chain, the handler can begin working on distance. He should take about one step back from the pan every three or four trials. **REMEMBER:** The dog is easily

confused; handlers must not try to advance their dogs to a new step until they are proficient at the previous step. This step is considered complete when the handler has gained a minimum distance of 15 feet from the pan and his dog is proficient without the dropper. Training time: four to five 15-minute sessions.

j. Step 10—Distance Training. Review step 9. Every three to four trials the handler takes one or two steps back from the pan. This procedure can be continued until the handler is at any desired distance from the pan; it should be carried to a minimum of 25 meters and can be con-



Figure 14. Food pellet dropped in pan; noise to attract dog's attention.

tinued out to 100 meters or more. Training time: four to five 15-minute sessions. This completes the search chain with the feed pan.

k. Goal Food. As described in paragraph 21b, goal food is that portion of a dog's prescribed ration not eaten during training *plus* one can of tasty dog food. Goal food should be given on the last trial of the day, since it is important to associate goal food with the dog's work. Dur-

ing the last session of the day, if the handler and instructor agree that a dog has performed well enough to earn its goal food, the goal food will be placed near the pan before the last trial is complete. At the completion of the last trial, instead of saying "Good" the handler says "Chow" in an excited, happy tone of voice. He moves quickly to the pan, maintaining his excited manner. It is important that the dog realizes



Figure 15. Handler moves dog; left hand on collar.

that this procedure is significant and that the dog has caused it to happen by pleasing its handler. As soon as he reaches the pan, the handler prepares the goal food. He may talk happily to his dog or repeat "Chow" several times while doing this. After receiving goal food, the dog does no further work that day, but the handler should play with his dog and groom it. For dogs that require more association of food with their work, it may be desirable to

give a small portion of the daily ration on the last trial of each session. If so, it should be given in the same manner as regular goal food. The handler will need to know how many sessions his dog will work that day and regulate its food accordingly. The end-of-the-day goal food must be the largest portion. It is desirable, but not always practical, to give goal food at different times each day, so the dogs will not learn to anticipate it. Once a dog has learned that



Figure 16. Step 1—movement gesture, starting position.

"Chow" will be followed by goal food, its handler can gradually increase the interval between "Chow" and receipt of goal food a few feet each day. This will be useful when working long lanes, as the dogs will run to their pans on "Chow" and wait for their goal food.

1. *Timeout.* A dog is "timed out" when it will not work, when it misbehaves or malperforms, whether through ignorance or deliberately. A common reason is lack of motivation for food. Instructors must insure that the handlers don't cause timeouts by expecting too much of their



Figure 17. Step 2—movement gesture, completed.

dogs or trying to advance them too quickly. This only confuses the dog; if it is confused or timed out too many times in succession, it may refuse to work at all. If a handler's dog is confused, he should reestablish its confidence by backing off to an earlier step of training that the dog can perform successfully. Once he has decided to time his dog out, the handler must be sure that he gives the signal *at the moment his dog is doing something wrong*. A low, stern NO is a good signal for this purpose. After giving the signal, the handler immediately puts his dog on-leash, keeps it at close heel (fig 18), and takes it to an area away from other dogs and from its usual stakeout. After locating a suitable tree or post, the handler will tie his dog so that it cannot run around or lay down.



Figure 18. Dog at close heel.

Warning. This is done only when directed by an instructor and under his supervision: (fig 19 and 20).

The dog is left alone, but the handler stays where he can watch to insure his dog doesn't choke or hurt itself. The instructor will deter-



Figure 19. Dog staked for timeout—standing.

mine if the dog should be timed out for a short period and worked again, or timed out until the next day. In hot weather the dog will be staked in the shade with water. Most timeouts should not exceed 15 to 20 minutes.

32. Concurrent Training

Concurrent training is performed outside the pen without the search chain. It should include conditioning of "Good," MOVEOUT, COME, HEEL, SIT, DOWN and STAY.

a. Start on the 5-foot leash while conditioning "Good," then advance to the 25-foot leash and

to off leash as the dog becomes proficient at the movements. Condition the dog to "Good" in the same manner as outlined in paragraph 26. The difference being that the dog is on-leash instead of in the pen. Conditioning of "Good" outside of pen should progress at the same rate as inside. When the dog is conditioned to "Good," the handler can start shaping his dog to move away from him as outlined under paragraph 27. He should advance to the 25-foot leash at this time and shape the dog to a minimum distance of 15 feet before starting recall training.

b. Up to this point the dog has automatically returned to the handler when the word "Good"



Figure 20. Dog staked for timeout—sitting.

has been given. In effect, "Good" has been a form of recalling the dog. Now, the dog is to return on the command COME. It will be necessary to pair the old signal "Good" with the new signal COME. COME is given first, followed immediately by the old signal "Good." When the handler sees the dog starting to return on COME, he can start delaying the word "Good." As his dog starts to *turn* and come back to the handler when COME is given, the turn movement is reinforced with "Good." The dog completes the turn before hearing "Good;" the handler then waits until his dog takes a step toward him before saying "Good," then two steps and

so on until the dog has been shaped to return to the handler's right side on COME before being reinforced with "Good."

c. When the dog is performing well on COME, the handler starts taking his dog by the collar with his right hand and gently pulling it around to his rear, catching the collar with his left hand and bringing the dog to the heel position. At the moment the dog reaches the heel position, its handler reinforces with "Good" and $\frac{1}{2}$ second later delivers a piece of food. After three or four trials the handler can start giving his dog HEEL when he reaches for its collar to guide it around and into the heel position. The

handler gives less and less help to his dog as training progresses, until the dog is coming around him and stopping at the heel position on the commands of COME and then HEEL.

d. When the dog stops at the heel position, the handler puts his left hand at the base of the dog's tail and applies mild pressure until the dog sits. At the moment the dog sits it is reinforced with "Good" and then given food in the usual manner. When the dog starts sitting as the handler touches it at the base of the tail (croup), the handler can then start giving the verbal SIT command an instant before touching the dog, until the dog is sitting on the verbal command for reinforcement and the touch has been eliminated.

e. When the dog is sitting on command, the handler takes the leash in his left hand, close to the dog's neck, gently pulling down until the dog goes down; the instant the dog is down the handler reinforces as usual. Continue with less pull on the leash each trial until the dog goes down on the verbal command DOWN without assistance.

f. The handler starts with the dog sitting at the heel position, gives the verbal command STAY and, holding the dog back with his left hand, takes a half step forward and then reinforces. This continues until the dog ceases try-

ing to move with its handler and he can stop restraining his dog. He can then take two steps after giving STAY before reinforcing. Continue this procedure until he handler can move away from his dog to the desired distance. When the dog has learned all of these commands, the handler can then start giving them without a set pattern, such as giving the dog DOWN after moving to the end of the leash, or STAY when the dog is coming back on recall; each command given in this way should be reinforced because it is no longer a chain leading up to reinforcement as far as the dog is concerned. After the dog has learned to perform all of the commands, the handler can give a series of commands before reinforcing. If he wants a new signal or command to take over, or have the same effect as an old signal (i.e., he has already taught the dog to go down on the verbal command and he wants it to go down on the hand gesture), the handler gives the new command (hand gesture) and instant before giving the old command DOWN. The dog will associate this new signal with the old one and start working on it. The difference in the search chain is that the handler wants the dog to perform a series of events, one after the other, by giving the dog a minimum number of commands; in concurrent training he wants to gain control of his dog in all possible situations.

CHAPTER 4

BASIC DETECTION TRAINING

Section I. GENERAL

33. Scope

a. During basic detection the handler learns—
(1) How his dog reacts to different targets.
(2) The fundamentals of target concealment.

(3) How to transfer pen training to the field.

b. The mine and tunnel dog learns—
(1) That it must find and respond to mines, boobytraps, and tripwires.
(2) That it must associate certain odor combinations with the targets it is to find.

34. The Cricket Can

The cricket can is a device used as a mine simulant. Because of its construction, it is easily used for the purpose of transferring the dog's attention from the feed pan.

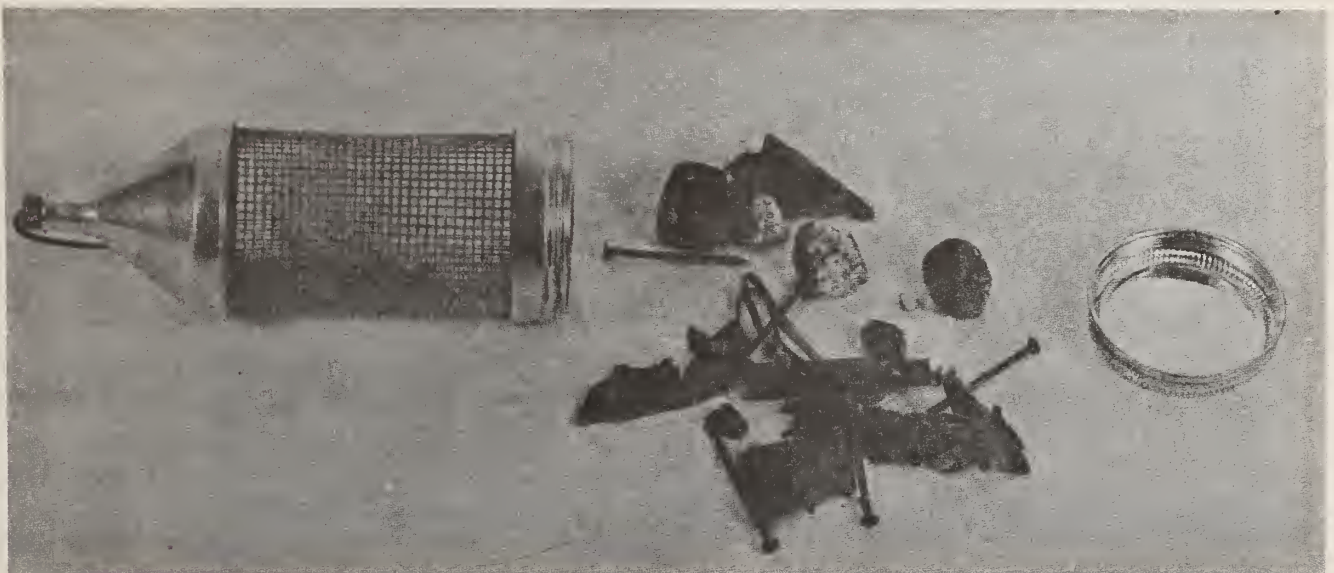
a. *Standard Cricket Cans.* The 7-inch fisher-

man-type cricket can, either plastic or metal (fig 21), is an inexpensive, simple device.

b. *Substitute.* Substitute cricket cans may be



① Type can
Figure 21. Cricket cans.



② Can and components
Figure 21—Continued.

constructed of No. 5 messhall cans by covering the open end with screen wire.

c. Components. The cricket can's wire screen construction holds the components but allows their odor to escape. Each cricket can should contain a variety of objects simulating the odors of mines or weapons. Typical components (fig 21) are: expended brass, blank ammunition, bits of plastic or metal, gun oil, brass wire, black powder, and bits of plastic explosive or TNT.

35. The Changeover

The use of the leather, or working harness is an important part of the dog's training. Most military dogs learn early in their training to associate wearing of the choke chain or leather

collar with play, rest, or obedience-type training, and the harness with fieldwork. The harness also removes the restriction from the dog's neck, gives it more freedom of action, and gives the handler greater control over his dog under adverse conditions such as difficult terrain or contact with the enemy. It is therefore required that the collar be replaced with the harness prior to any field exercise. This procedure is called the changeover.

36. Noise Discipline

From the beginning of basic detection training, the mine and tunnel dog is always reprimanded if it barks or whines, for any reason, while working. The dog may bark or whine only in the kennels, or during play, stake out, and travel



Figure 22. Silencing dog.

periods. The handler can correct his dog by commanding NO. If this fails, he may gently hold his dog's mouth shut. When necessary, he will strike his dog in the windpipe with his hand

or grasp it by the throat and apply pressure until the dog stops trying to make noise (fig 22). As soon as the dog is quiet it should be praised.

Section II. PEN TRAINING

37. General

As a prelude to field work, the dog's interest must be transferred from the feed pan to the cricket can. This is done in the training pen, using the search chain substitution procedure.

38. Procedure

a. Initially, the feed pan could be placed in the center of the pen, with a cricket can sitting 1 to 2 feet in front of it. The dog is put through the search chain procedure, going to the pan and the cricket can, sitting, and then being recalled.

b. The feed pan is moved away from the cricket can, 1 to 2 feet at a time. If a dog bypasses the cricket can to go to the pan, it is not rewarded. Most dogs will soon learn to sit at the cricket can. If any dogs have difficulty learning this, it may be necessary to use a dropper.

c. Once a dog is going consistently to the cricket can and sitting, the feed pan is removed. The cricket can is then moved to a different location in the pen for each trial, so that the dog must look for it.

Section III. TRAIL ADAPTATION

39. General

During trail adaptation, the training environment is moved from the pens to simple trials, and the dogs are introduced to ordnance devices.

40. Lanes

Training lanes should be narrow (6 to 10 feet) dirt roads or lanes cut across open fields. During trail adaptation, each lane need not exceed 50 meters in length. There should be one lane for every five to ten teams (one dog and one student per team).

41. Ordnance

A large quantity and variety of ordnance devices are required for training mine and tunnel dogs. Ordnance will contain all components except fuses or detonators. During trail adaptation, however, ordnance should be limited to two types:

a. M16-series antipersonnel (AP) mines, since these must closely resemble the two types of cricket cans (fig 23).

b. Antitank (AT) mines. These may be M15, M19, or M21 series mines (fig 24).

42. Steps in Training

a. *Step 1.* Beginning about 10 feet from the start of a lane, program (set) the lane with three cricket cans. Cricket cans should be in the

center of the lane, about 10 feet apart. Standing at the start point, the handler gives his dog MOVEOUT. After the dog goes to the first can and sits, the handler gives it the STAY command and hand gesture. He then goes to his dog, kneels, picks up the cricket can, and holds it under his dog's nose. He says "Good" to the dog, pets it, and feeds it. Standing, the handler grasps his dog's harness with the fingers of his left hand and, *interposing his body between the*

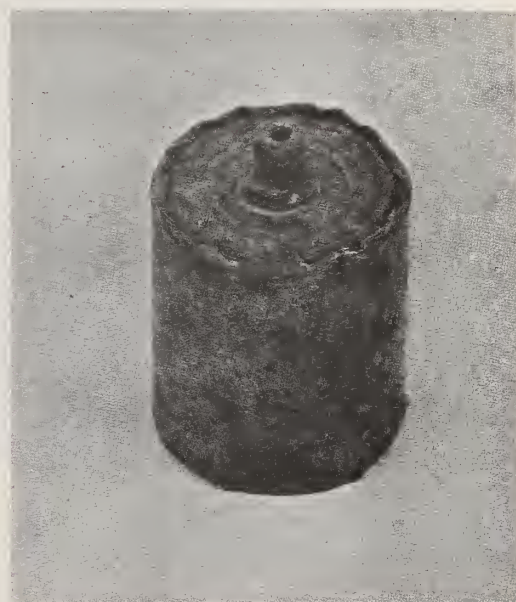


Figure 23. M16A1 antipersonnel mine.

dog and the cricket can, guides his dog around and 1 to 2 feet beyond the cricket can.

Note. This procedure is repeated in subsequent phases of training. By doing this, a dog is not given the opportunity to accidentally step on the device.

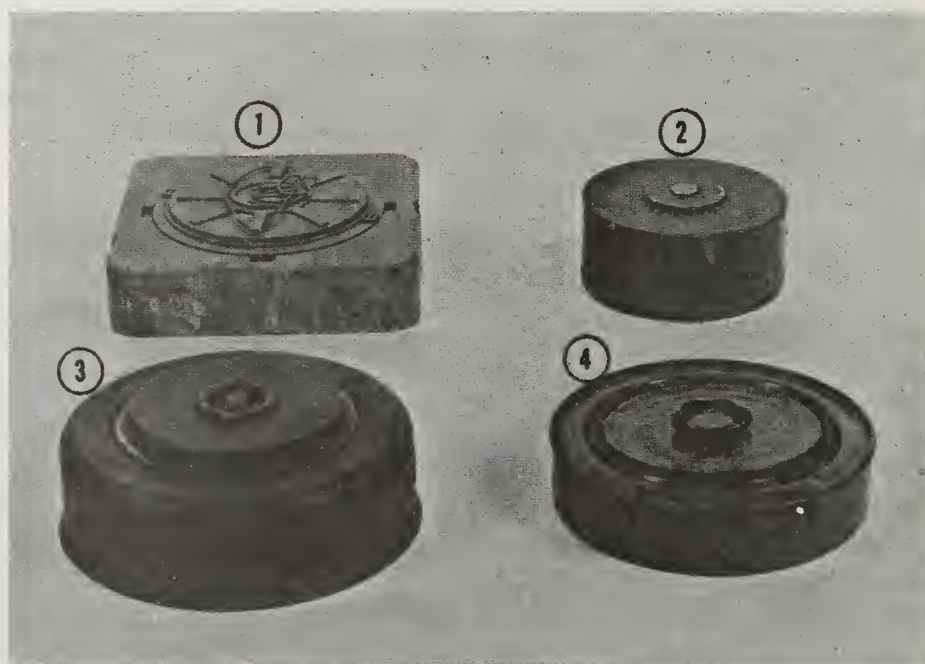
The handler repeats this procedure with the second and third cricket cans. Some dogs may go around a can and sit facing their handlers since they have the food. Dogs should *always* be required to sit facing the target from the direction that they approached it. (In this case facing down trail, away from the handler.) If necessary, the handler corrects his dog's position until the dog understands what it must do.

b. Step 2. Program the lane as in step 1, except that an ordnance device (preferably an M16 AP mine) is substituted for the third cricket can. If a dog approaches the mine and sniffs at it without sitting, the handler may give it the sit command. If a dog ignores the mine, or sniffs at it and moves on, the handler recalls his dog and sends it out again. It may be necessary to place a cricket can next to the mine.

c. Steps 3, 4, 5. Repeat step 2 with the mine instead of the second cricket can. Next, increase the number of targets to three cricket cans, one AP mine, and one AT mine, in any order, *except* that the first target is always a cricket can. Begin varying the positions of the targets left, right, and center of the lane and vary the distances.

Caution. Never establish a pattern, such as left, right, center, left, right, . . . as a dog will quickly figure it out.

d. Steps 6, 7. Increase the number of ordnance devices to seven so that there are ten targets. When a dog goes to each target, in turn, and sits, remove the cricket cans. A dog is never allowed to bypass a target. If it does, the handler brings the dog back to the target and sits it. He then picks up the target, holds it under his dog's nose, and says NO in a stern tone of voice. The handler commands his dog to STAY, backs up several paces, and waits 5 to 10 seconds without looking at his dog. He then takes his dog back 10 to 15 feet and moves it out again. If any dog continues to bypass, or not sit at targets, it is timed out.



- 1—M19
- 2—M21
- 3—M15
- 4—TMN-47 (foreign)

Figure 24. Antipersonnel mines.

Section IV. TRIPWIRE TRAINING

43. General

Tripwire training is conducted concurrently with trail adaptation. A typical training day during this phase may consist of several trials of each subject, along with individual obedience.

44. Introduction to Tripwires

Tripwires present some unique problems in training mine and tunnel dogs. The most important factor is to instill in the dog a reasonable caution towards tripwires. Since most dogs will have a natural suspicion of anything across their path, improper technique can change this to fear. This is one reason exploding devices are not attached to tripwires. A dog which has had several booby-traps blow up in its face may become trial-shy and refuse to work. On the other hand, if a dog

is taught no respect for tripwires, it may accidentally break them, or even do so deliberately to show its handler it has found one. A prudent balance must be made between desire to find tripwires and caution about touching them.

45. Tripwire Lanes

When first introducing tripwires, special lanes should be used. These may be narrow (6 to 10 foot) dirt roads or lanes cut across fields. Each lane should be about 50 meters long and should contain 5 to 10 fixed or movable stakes at least 3 to 3 1/2 feet long. Each stake has nails or hooks every 6 inches for a length of 3 feet, so that wires can be placed at varying distances and heights. Tripwires at this point should be heavy white string (easily visible) with weights on both ends to hold it taut (fig 25 and 26).

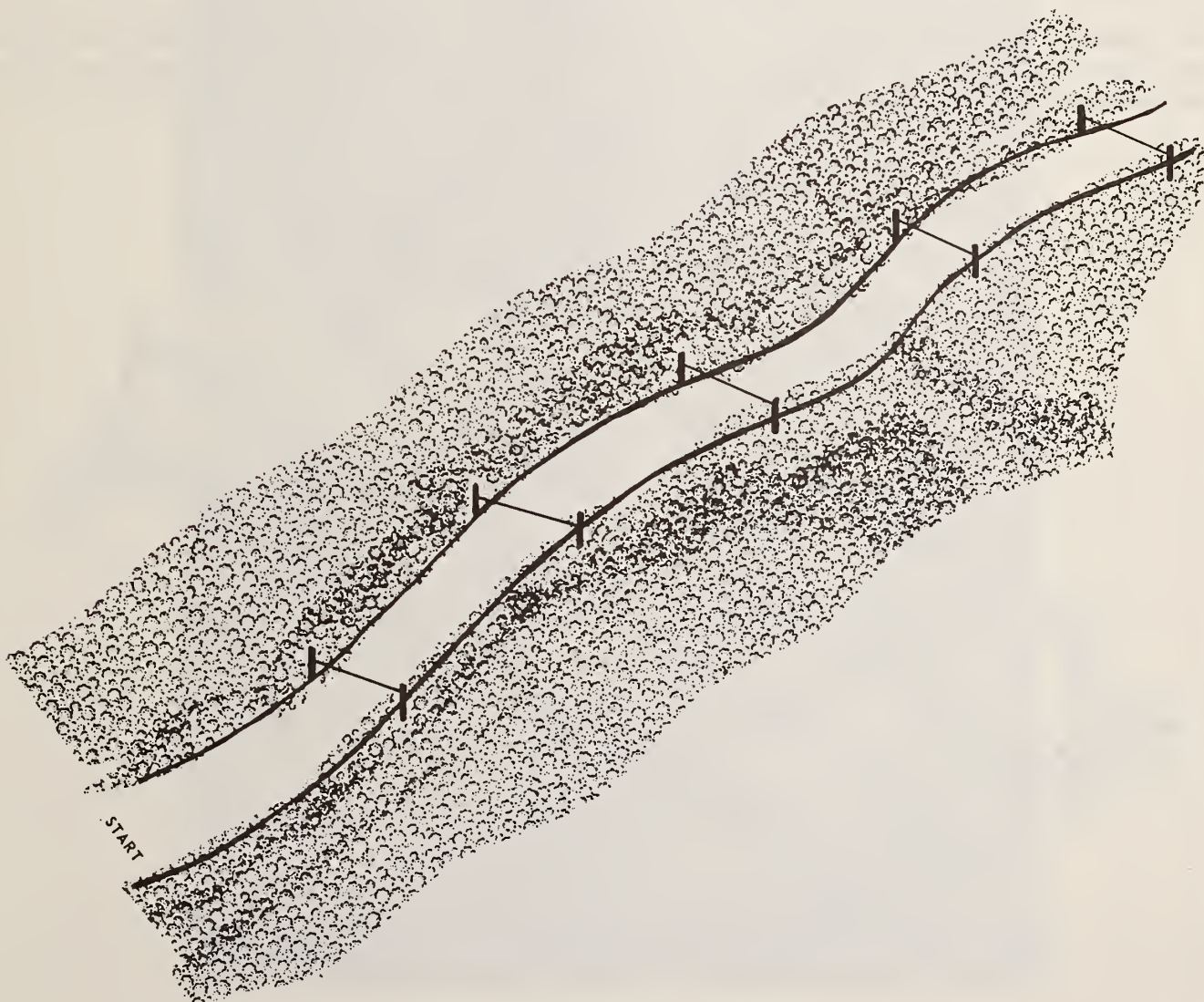


Figure 25. Tripwire lane.

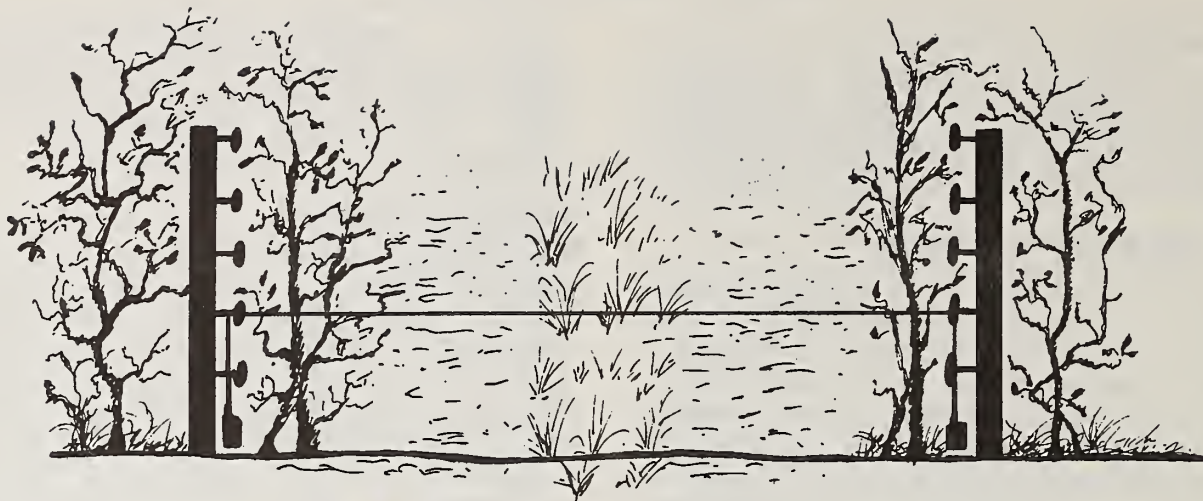


Figure 26. Tripwire hookup.

The strings should be placed on different stakes for each dog.

46. Tripwire Training Device

Some dogs may have difficulty with early tripwire training, or may wander off the lanes and

bypass tripwires. In this case, a simple training device may be constructed of lumber (fig 27). The device should consist of two rails, 24-feet long and 3-feet high, with posts every 3 feet. Tripwires can be attached to the posts as with the stakes on the lanes. This device is used in the

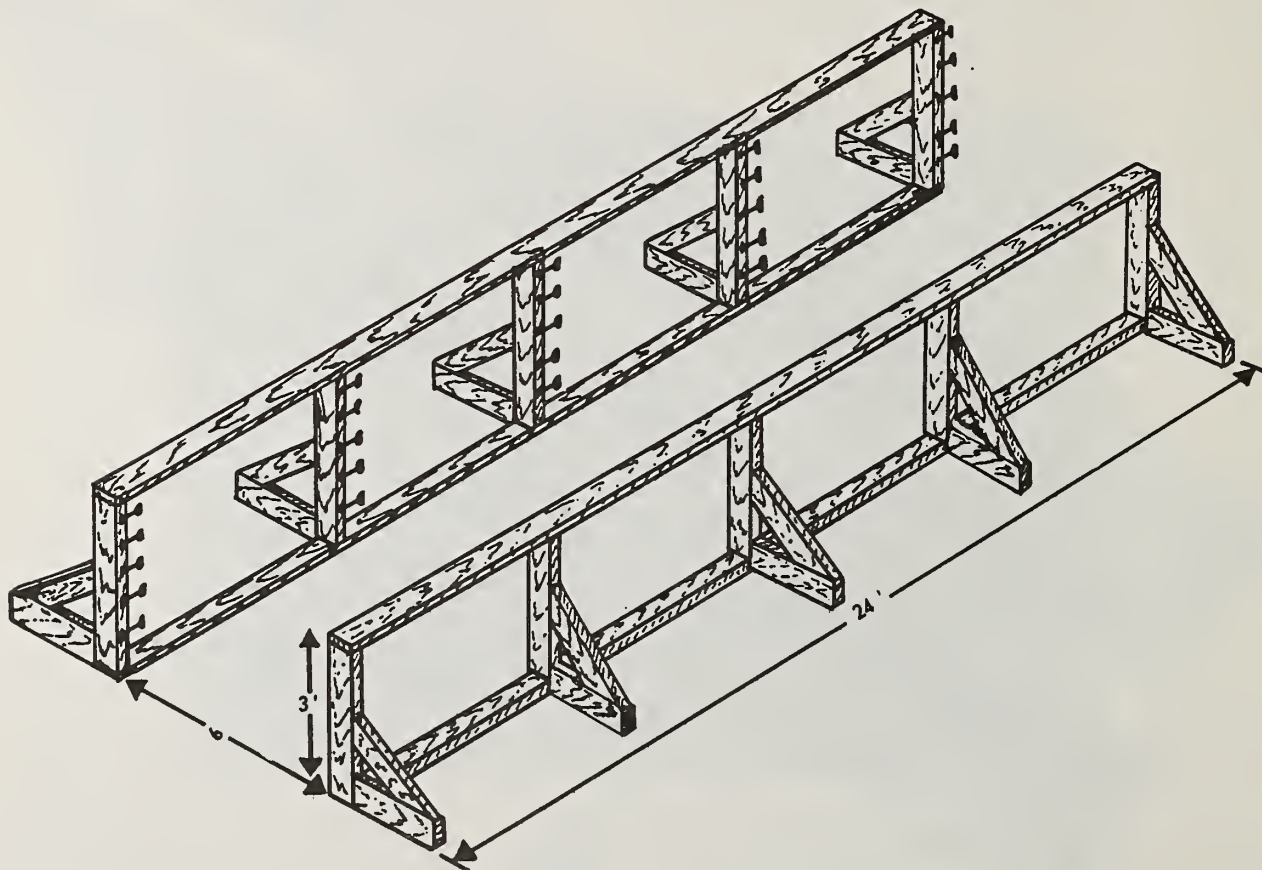


Figure 27. Tripwire training device.

same manner as the training lane, but restricts the dog's attention to its immediate environment. If desired, the rails may be covered on the outside with chicken wire and gates may be added.

47. Method

a. Step 1. As described previously, the search chain substitution procedure is used. Initially, each dog can be worked on one tripwire, placed about 10 feet from the starting point and 1 foot high. The dog is first introduced to the string (wire) with the food pan partially under the string and the dropper behind the string (fig 28). The search chain is employed, with the dog going to the pan, eating the food, and returning to the heel position. This will acquaint the dog

with the string without instilling fear, and condition it to stop at string or wires.

b. Step 2. Repeat step 1 with the pan centered under the string. The distance of the string from the starting point is increased until the dog consistently goes through the search chain the full length of the lane.

c. Step 3. The food pan with one cube in it is placed 1 to 2 feet beyond the string, which is in the same position as in step 1. Here it is advisable to use three strings at 6, 12, and 18 inches, to discourage the dog's jumping the string to get at the feed pan. The handler will follow his dog closely as it moves out. As soon as his dog gives the slightest indication of hesitation at the barrier, the handler reinforces with

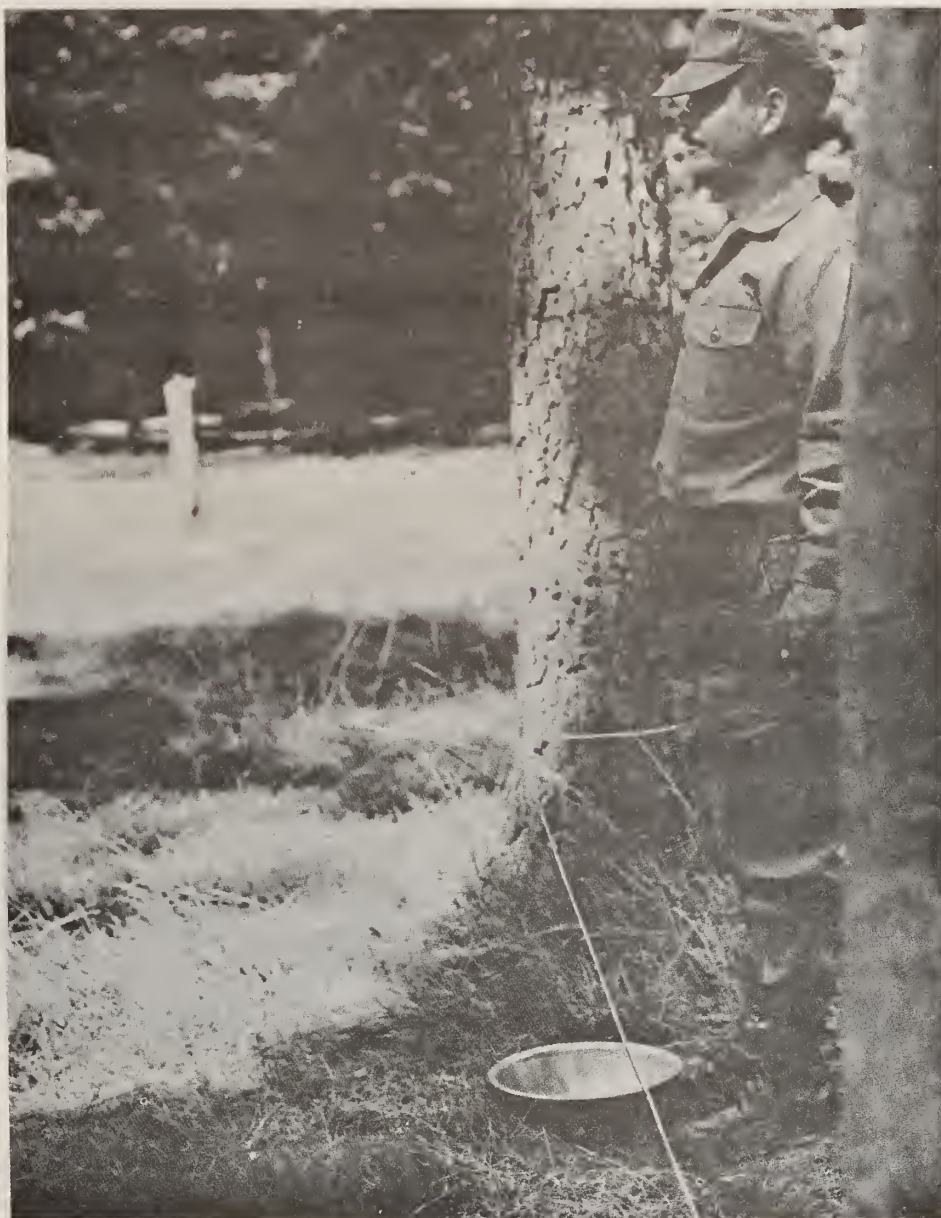


Figure 28. Feed pan under white string.

"Good," and the dropper shoves the pan under the string to the dog. The dropper **MUST MAKE NO MOVE TOWARD** the feed pan until "Good" is sounded. Continue this procedure until the dog goes to the barrier and waits for reinforcement. Gradually reduce the number of strings to one, and begin varying the string height and distance.

d. Step 4. Fade out the feed pan and dropper. To begin, the handler will give food by hand on every other trail. Gradually increase the ratio of hand-to-pan delivery until all food comes from the handler. At the same time, the dropper will gradually move away from the string until he is out of the picture. When this is accomplished, the feed pan is removed.

e. Step 5. As the pan and dropper are being faded out, begin incorporating the sit response at the string (tripwire). As soon as his dog stops at the string, the handler gives the sit command,

followed 1/2 second later by a light touch on his dog's croup. When the sit movement is complete, the handler reinforces. This procedure is continued until the dog consistently goes to the string and sits without command.

f. Step 6. Begin delaying reinforcement of the sit response. When the dog sits, the handler gives the stay command. After 1 to 2 seconds, if his dog remains sitting, the handler reinforces. Continue until the dog remains sitting up to 5 seconds before reinforcement. From this point on, dogs should always be required to sit at least 2 seconds before reinforcement. This practice will later insure that a dog's alert is pinpointed and observed by all members of a patrol.

g. Step 7. The handler will begin by having his dog complete the search chain with tripwires. He allows his dog to go to the string and sit. After 2 seconds, he recalls his dog to the heel position before reinforcing.

CHAPTER 5

INTERMEDIATE DETECTION TRAINING

Section I. GENERAL

48. Scope

a. During intermediate detection training the handler learns—

(1) The first three grades of target concealment.

(2) Wind, weather, and terrain factors affecting his dog's working ability, and target emplacement.

b. The mine and tunnel dog learns—

(1) That it can no longer rely on sight to locate targets, but must use its nose.

(2) That ordnance items and tripwires are not always found on the ground or directly across its path.

Note. Certain abbreviations are used in this chapter relative to the scoresheet (app B). A composite list of these abbreviations is at appendix C.

49. Ordnance

A selection of ordnance targets is introduced during this phase. In addition to those already introduced, typical items are (fig 29):

a. Hand grenades.

b. Rifle grenades.

c. Mortar rounds (e.g., 60-mm, 81-mm, 4.2-inch).

d. Artillery rounds (e.g., 105-mm, 155-mm).

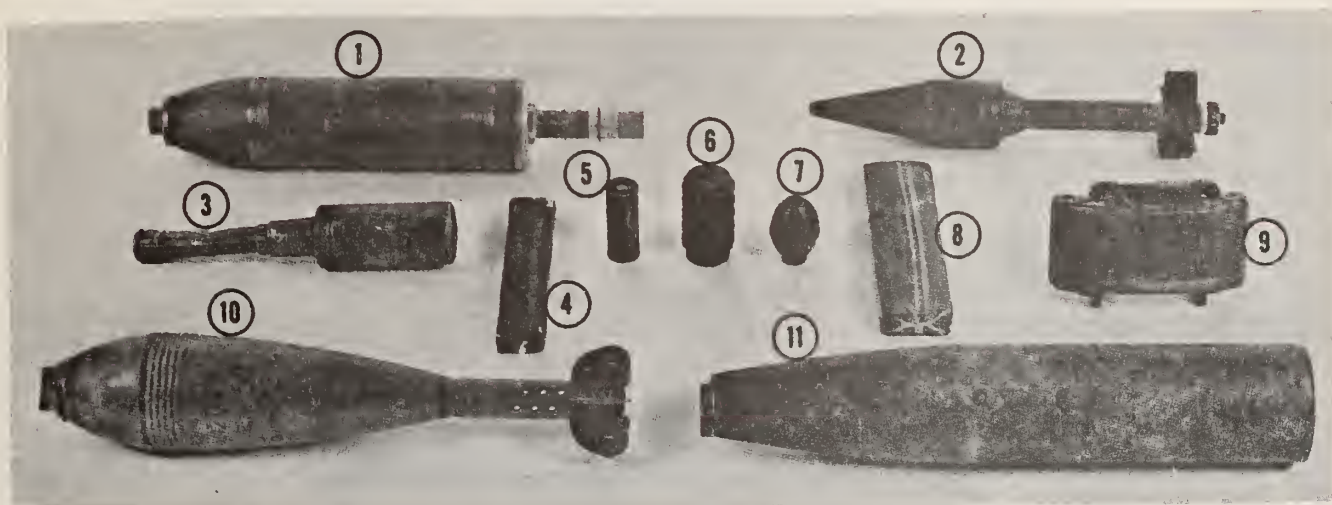
e. Cratering charges.

f. Artillery supplemental charges.

g. TNT (block).

h. Plastic explosives (small samples of C-4, block or sheet).

i. Rocket warheads.



1—4.2-inch mortar round
2—RPG-7 rocket (foreign)
3—Concussion grenade (foreign)
4—C4 plastic explosive (block)

5—1/4 lb. TNT
6—Fragmentation grenade
7—M26A1 fragmentation grenade
8—C4 plastic explosive (sheet)

9—M18A1 antipersonnel mine
10—122-mm mortar round (foreign)
11—120-mm rocket warhead (foreign)

Figure 29. Ordnance type items.

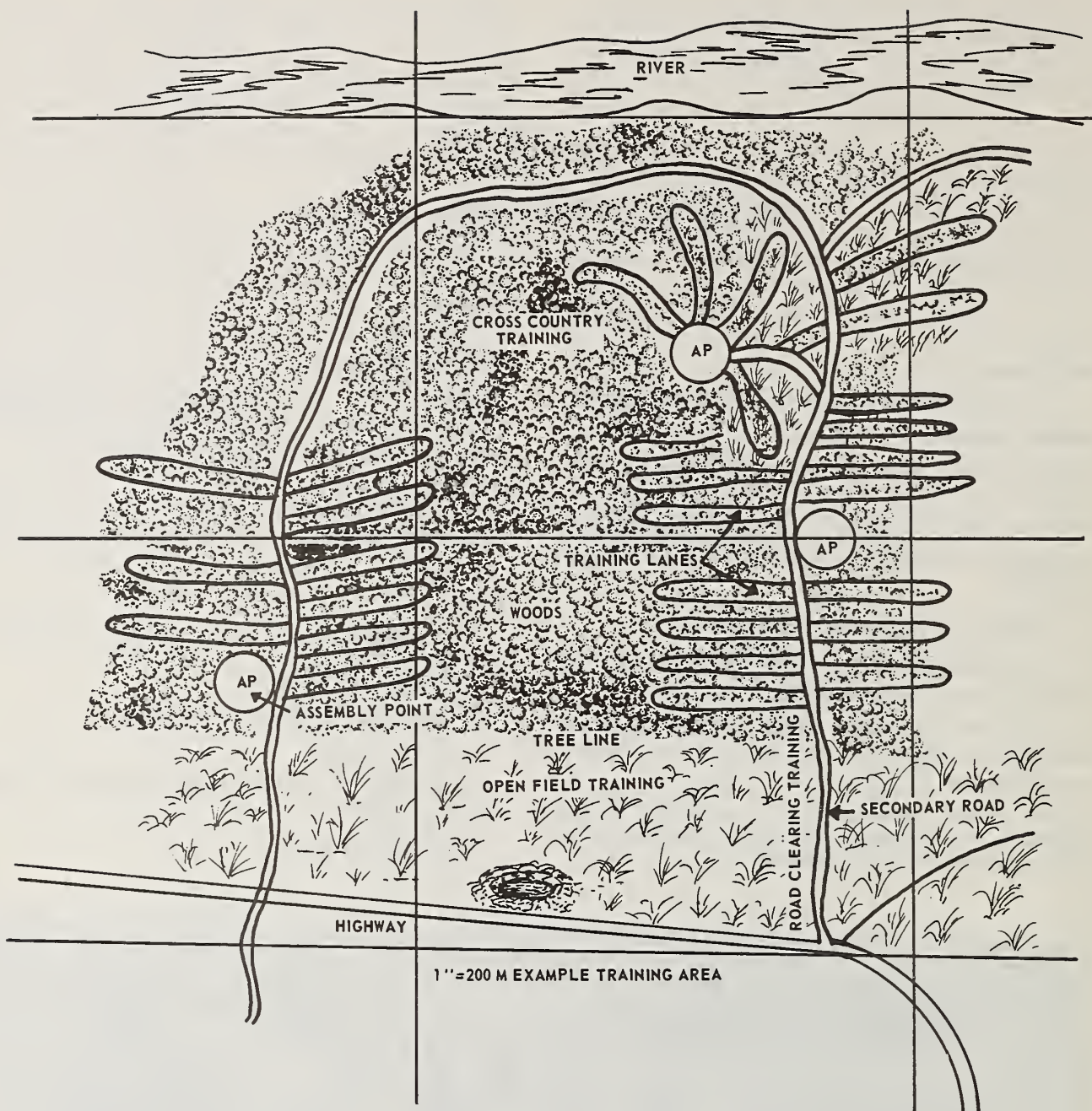


Figure 30. Schematic of training area.

j. Any foreign made items.

k. Homemade explosive or nonexplosive booby-traps.

50. Target Grades

Targets are graded according to degree of concealment or difficulty. Table 1 lists ordnance grades; table 2 lists tripwire grades.

51. Types of Concealment

Ordnance targets may be concealed in one of four ways (app C):

a. *Hidden (H)*. Target placed at ground level, hidden by grass, bushes, logs, and the like.

b. *Buried (B)*. Target buried in hole 1 to 12 inches below ground level.

c. *Elevated (E)*. Target elevated 1 to 6 feet above ground level, concealed in or hanging from tree branches, bushes, or tree trunks.

d. *Deadwood (D)*. Special setting for grade 1 and 2 training to teach dogs to inspect fallen logs and deadfalls.

Table 1 (Ordnance)*

Grade (GO)	Percent of Concealment
GO-1	0—25 percent of item concealed.
GO-2	50 percent of item concealed.
GO-3	75 percent of item concealed.
GO-4	95 percent of item concealed.
GO-5	100; item completely concealed.

Table 2 (Tripwires)*

Grade (GT)	
GT-1	White string; simple cross-trail settings.
GT-2	White string plus heavy camouflage string; cross-trail settings.
GT-3	Heavy camouflage string, carpet thread, standard tripwire; cross-trail and angle settings.
GT-4	Grade 3 plus monofilament line, piano wire; grade 3 settings plus high, low, and parallel settings.
GT-5	Grade 4 plus vines; maximum difficulty.

*Note. Reference appendix C.

52. Training Lanes

An extensive network of training lanes is required for intermediate and advanced detection depending on class size and available terrain; from 10 to 50 or more kilometers of lanes may be required. By designing the available area according to the guidance in figures 30 and 31, a large number of lanes can be constructed in a relatively small area. A tractor-drawn brush

cutter with a 6-foot blade is ideal for this purpose. In addition to the reasons in paragraph 19, training lanes serve the following purposes:

- To guide or channel the dogs along the route where targets are emplaced, taking advantage of the wind.
- To insure administrative accountability of explosive ordnance and to facilitate its recovery.

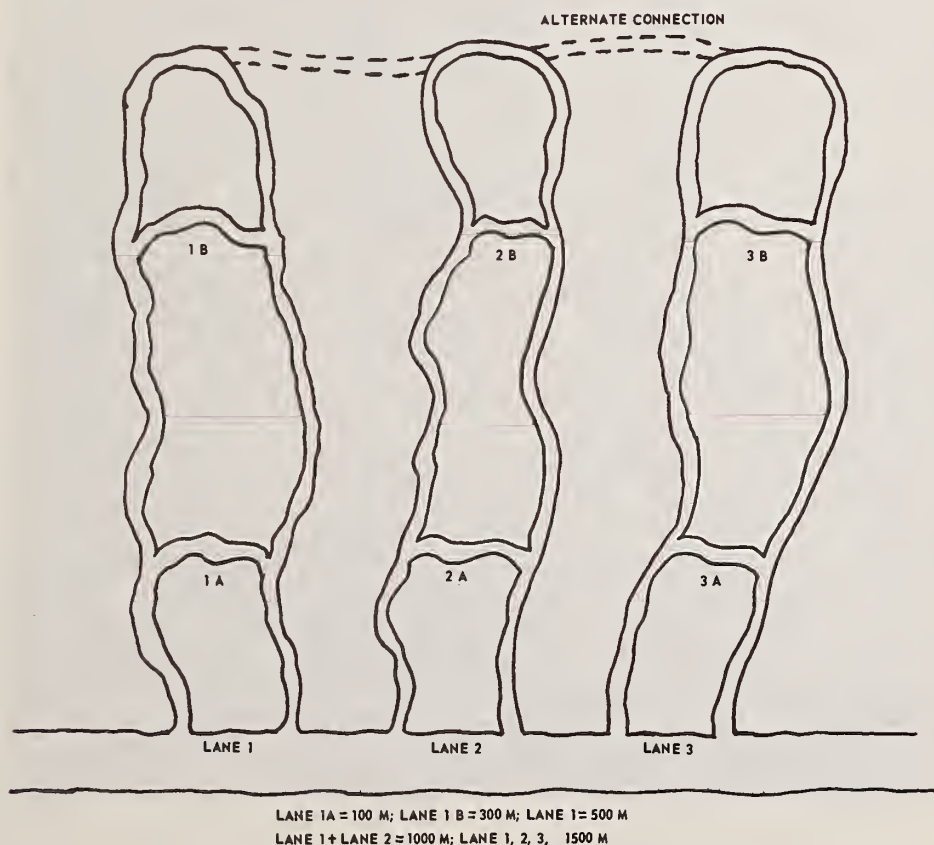


Figure 31. Training lanes—detail.

53. Scoresheets

Beginning with grade 1 detection, scoresheets should be kept for both handlers and dogs, and for every lane run. In this manner a record is maintained of each handler's progress; also, each dog's progress, its strong and weak areas, and its percentage of detections is maintained. See appendix B for suggested scoresheet format.

54. Ordnance—Grade 1 (Table 1)

a. Buried. Dig a hole in the lane deep enough so that the top of the mine is about 1 to 2 inches

below ground level. Leave the fill piled around the sides of the hole (fig 32).

b. Hidden. Place the mine on the ground near the upwind side of the lane, so that it is partially concealed by vegetation (fig 33).

c. Elevated. With a length of string, suspend a small ordnance item from a branch or bush so that it hangs over the lane 6 to 12 inches below the branch and 12 to 24 inches above the ground. The target should be plainly visible (fig 34).

d. Deadwood. Place a target on the ground.



Figure 32. Grade 1—buried target.



Figure 33. Grade 1—hidden target.

Surround its lower part with chunks of dead-wood (fig 35).

55. Tripwires—Grade 1 (Table 2)

Tripwire lanes should consist of five to ten white strings stretched across the lane about 12 inches off the ground. The strings should be 5 to 15 meters apart.

56. Practice

Before working their dogs, each handler should be given a selection of ordnance items and allowed to practice planting grade 1 targets in each of the four modes of concealment. The instructors

should then inspect and critique each lane. Typical deficiencies are:

- a. Overconcealment.
- b. Setting targets in a pattern, rather than at random.
- c. Setting targets on the downwind side of a lane.

57. Procedure

- a. Each team should run at least two ordnance and two tripwire lanes per day.
- b. Handlers should set each other's lanes. A handler should not run his dog on a lane he has



Figure 34. Grade 1—elevated target.

planted, since his dog will be too familiar with his handler's scent. More important, the handler's fore knowledge of the target locations may cause him to unconsciously "cue" his dog in later stages of training.

c. Each lane should contain five to ten targets, and be 100 to 300 meters long. During grade 1 and 2 training, time and space may be saved by running a lane from start to finish, and then back to the start point. Each ordnance lane should contain at least one example of each of the four types of concealment.

d. No two dogs should be run on the same lane. The second dog may be "cued" and sit wherever the first dog sat.

58. Grading Dog's Responses

There are four possible grades (scores) a dog may receive for any target (app C) :

a. *Good Response (GR)*. The dog locates the target on the first pass, and sits within 2 to 3 feet of it.

b. *Bad Response (BR)*. The dog locates the target on the first pass, but does not sit, or sits more than 3 feet from the target.

c. *False Positive (FP)*. The dog sits at an object or spot other than a target location.

d. *Missed Object (MO)*. The dog fails to locate the target.



Figure 35. Grade 1—deadwood target.

59. Combination Grades

A dog may receive some combination of the above grades; some examples are:

a. MO-GR. In this case, the dog may pass the target, then return to it and sit. The dog receives credit for a GR. Also, the handler may recall his dog past the target and send it out one time to try for a GR.

Note. When the wind is blowing down trail, a dog may have to pass the target to pick up the scent cone, and then work back to the target. In this situation the dog is given a GR.

b. BR-GR. A dog may locate a target but not sit; move on, then return and sit. Or, a dog may

sit more than 3 feet away, and correct its position on its own; or the handler may give his dog the command NO, and the dog may correct its position.

c. BR-MO. A dog may locate a target and not sit, move on, be recalled and moved out again, and pass the target again without stopping.

Note. In cases of combination grades, the last response given is used for calculating the dog's grade for that lane.

60. Performance Criteria

a. Before advancing to grade 2 detection, the handler must be able to—

(1) Set grade 1 ordnance and tripwire lanes properly.

(2) Control his dog by means of voice commands, arm-and-hand gestures, and whistle.

b. The dog must achieve a good response (GR) average of 70 percent on all targets employed (except personnel) during grade 1 detection training.

Section III. DETECTION—GRADE 2

61. Ordnance—Grade 2 (Table 1)

a. *Buried*. Carefully cut a cover plate out of the ground (fig 36). Slice this in half, discard one half and carefully set the other aside. Dig the hole as in grade 1. After emplacing the mine, cover the down trail half of the mine with dirt, then place the half cover plate on top of the dirt (fig 37). Discard any excess dirt well off the trail on the downwind side.

b. *Buried (Alternate)*. Dig the hole as in grade 1. Place dirt over the down trail half of the mine, then cover this with grass, leaves, or pine needles (fig 38).

c. *Hidden*. Place the target on the ground so that it is about half hidden by vegetation, or place the target in a fallen log or the hollow of a tree. The exposed half should face uptrail.

d. *Elevated*. Repeat the procedure used in grade 1, except hide the target so that it is partially concealed by leaves (fig 39).

e. *Deadwood*. Place the target on the ground. Cover the down trail half with chunks of deadwood (fig 40).

62. Tripwires—Grade 2 (Table 2)

Lanes should be set up as in grade 1, except that each white string should be 6 to 9 inches above the ground, with a green or brown thread strung 6 inches above it. This arrangement is especially useful with dogs that have a tendency to jump the white strings, since they will break the thread.

63. Practice

Handlers should first practice setting grade 2 lanes before working their dogs.

64. Procedure

Follow the procedure outlined for grade 1 detection.

65. Performance Criteria

a. *Handler*. The handler must be able to place ordnance and tripwires, and control his dog.

b. *Dog*. The dog must achieve a good response (GR) average of 70 percent on all targets employed (except personnel) during grade 2 detection training.

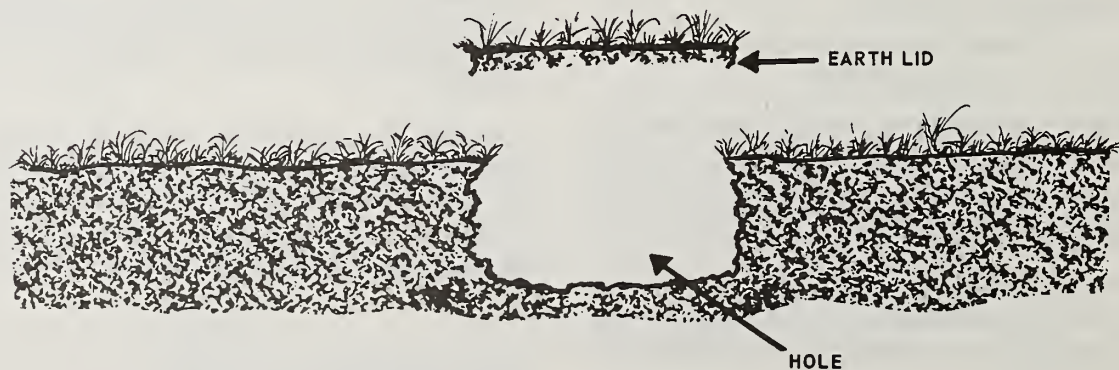


Figure 36. Earth cover plate.



Figure 37. Grade 2—buried target.



Figure 38. Grade 2—buried target—alternate.



Figure 39. Grade 2—elevated target.



Figure 40. Grade 2—deadwood target.

Section IV. WIND, WEATHER, AND TERRAIN

66. Wind

a. Wind is an important consideration in the proper employment of mine and tunnel dogs. During training, targets should almost always be emplaced so that the wind is blowing toward the dog. During employment, the team should be worked so as to take advantage of the wind.

b. Wind produces what is known as a scout (fig 41). The odors emanating from a target will be carried by the wind. Strong wind will produce a narrow cone compared to a moderate, steady wind. A light breeze will cause the scent of drift weakly. To quickly and correctly report his dog's alerts, the handler must be constantly aware of the wind direction.

67. Weather

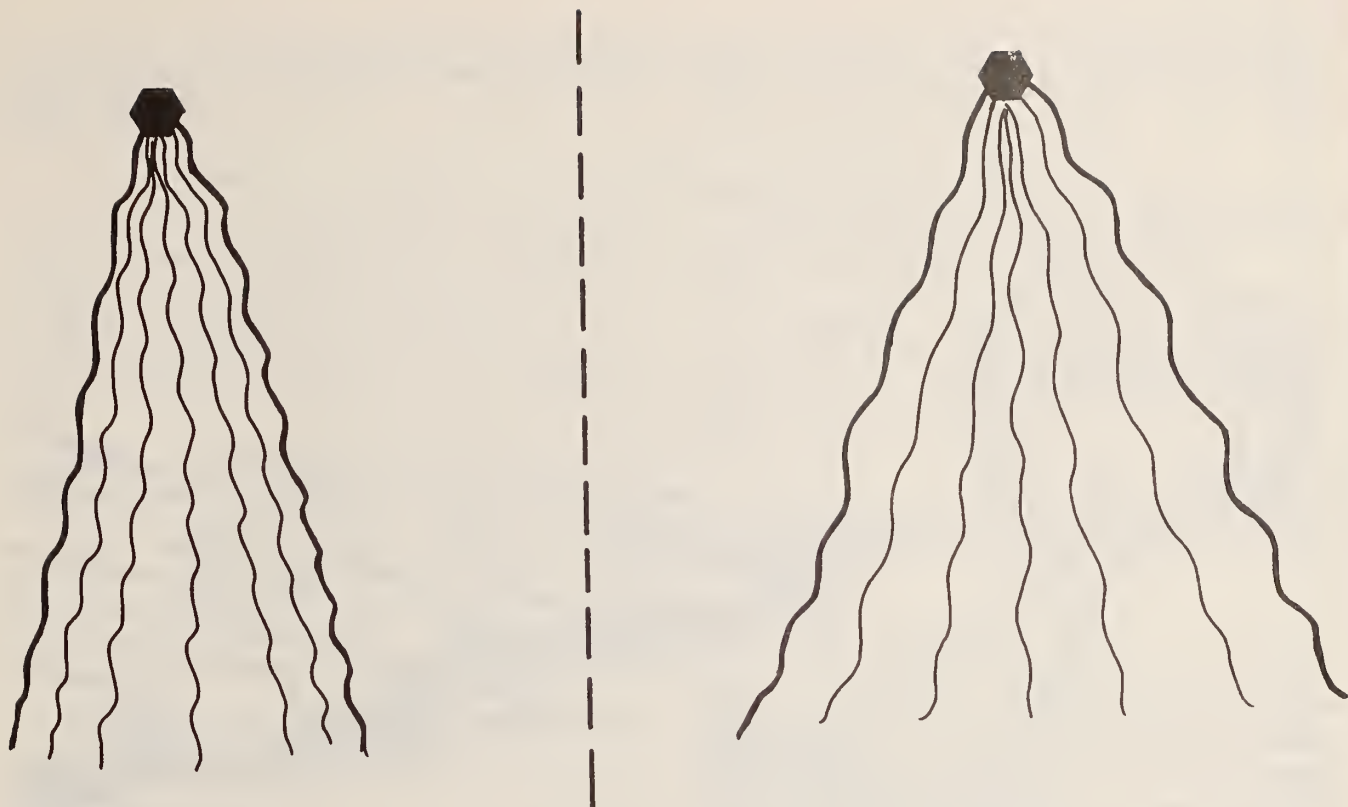
Weather can sometimes have a pronounced effect on the employment of mine and tunnel dogs, or even prevent their effective employment. Obviously, mine and tunnel dogs are best employed when temperature and humidity are moderate;

in situations of little wind and high humidity there may be little or no scent cone from a target. The scent will be concentrated in the immediate target area (fig 42). While this means that a dog must pass very near the target to smell it, it also increases the chances of detection due to the concentration of scent. This situation will also apply in light rain or snowfall. Heavy rain or snow will wash away or cover odors emanating from the target area. Under these conditions, the dog has little chance of detecting a target, and usually will not be employed at those times. Shortly after a rain, however, conditions again become good due to the humidity.

68. Terrain

a. Terrain is a determining factor in the direction and force of the wind and a necessary consideration in the working of mine and tunnel dogs.

b. Flat, even terrain will allow the wind to



STRONG WIND

LIGHT WIND

Figure 41. Scent cones.

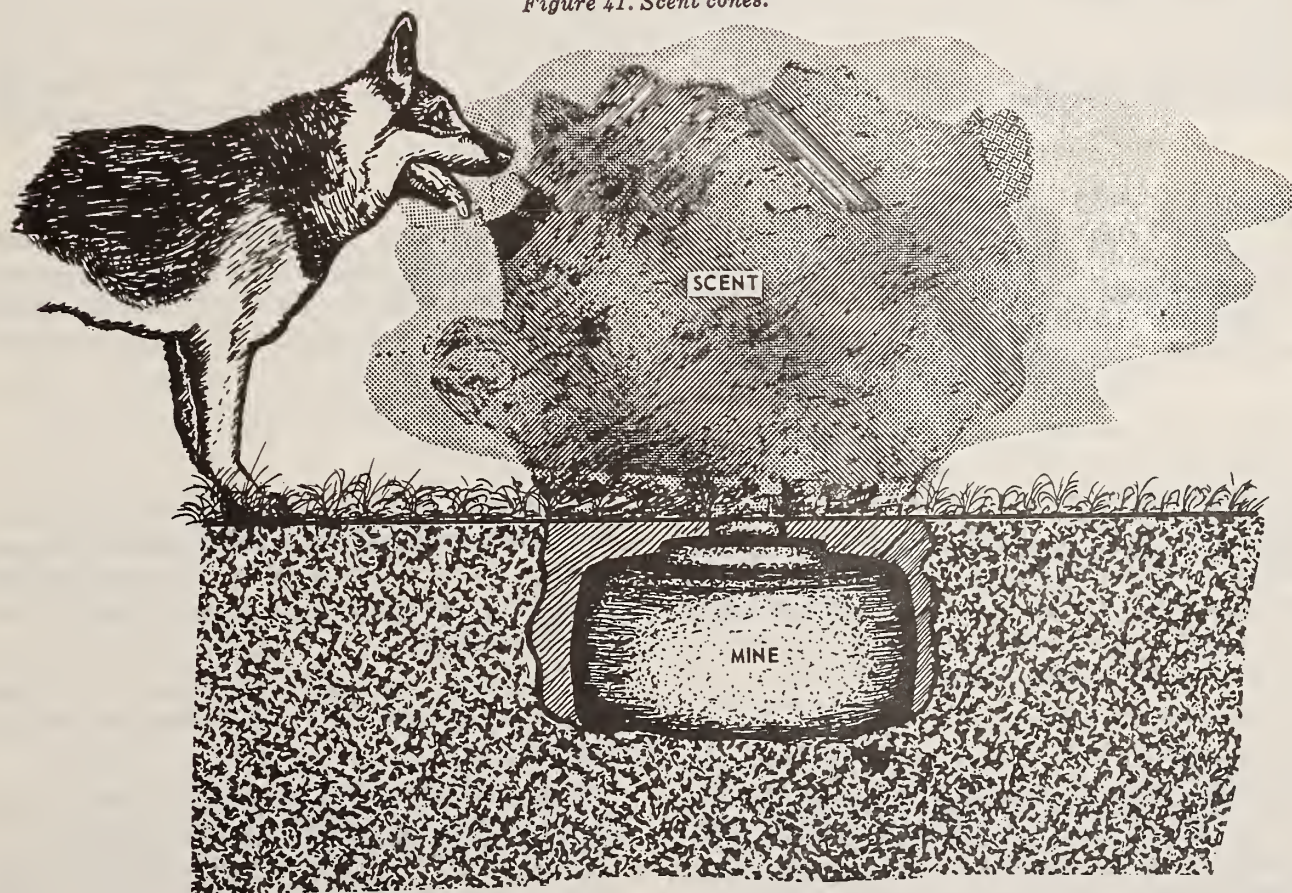


Figure 42. Scent concentrated by humidity.

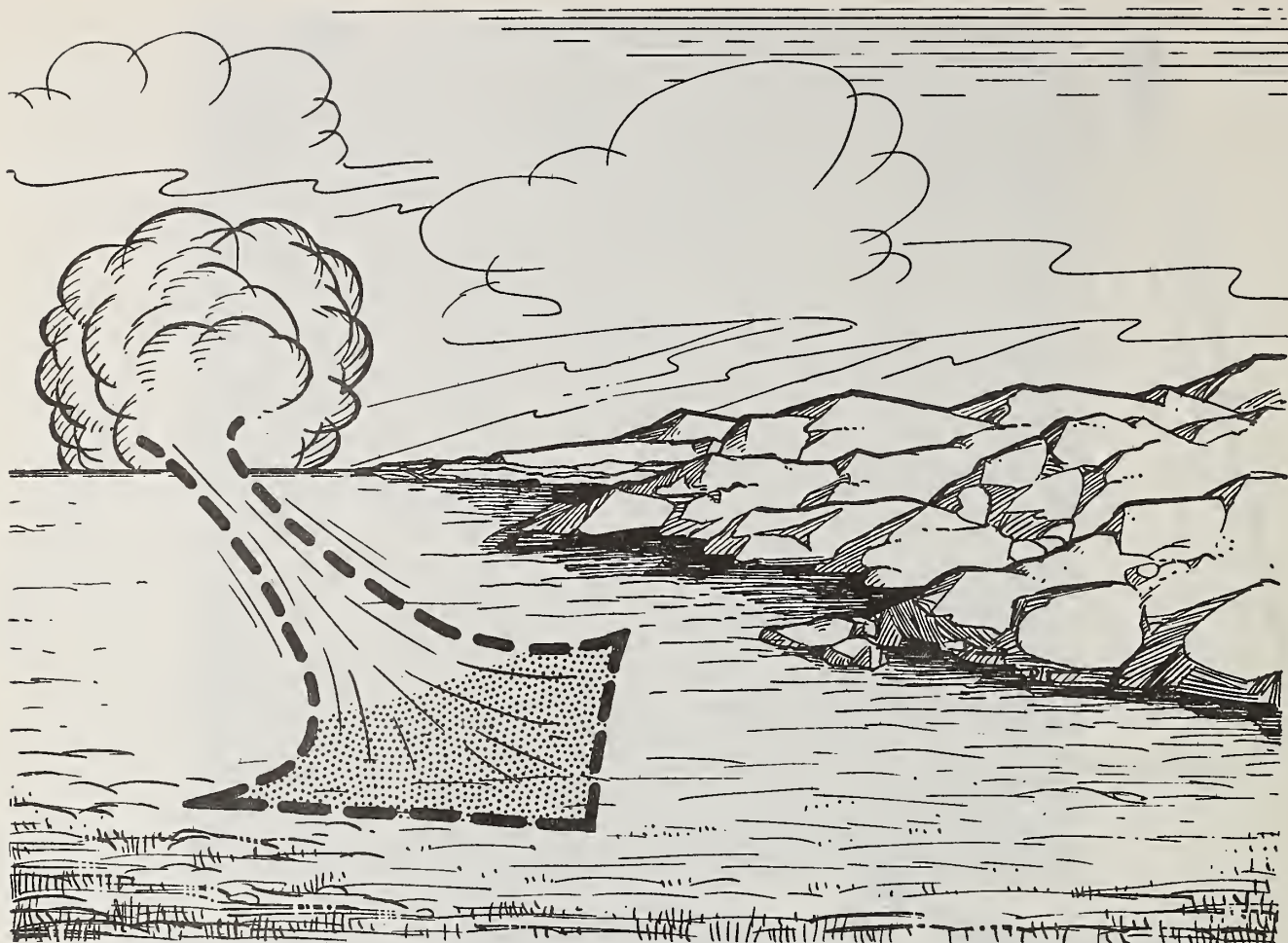


Figure 43. Wind over flat terrain.

blow steadily (fig 43). With this condition, the dog may pick up a target from 40 to 50 meters or farther away.

c. Heavy vegetation, such as in forests, swamps, or jungles will restrict the travel of

scent considerably. The wind may drift aimlessly, swirl, or rapidly change direction in these areas. The handler must be alert for these conditions and work his dog to take advantage of what wind there is.

Section V. TRAINING PROBLEMS

69. General

In grade 3 detection, the dog must begin relying almost solely on its sense of smell for target detection. This section deals with common training problems which should be resolved before or during this next training phase.

70. Speed

Some dogs develop a tendency to work too fast. This is usually due to excess energy or to over-anxiety to find targets. Such dogs may miss targets by running out of the scent cone, or they may run into tripwires. Handlers must concentrate

on slowing down such dogs. They must, however, temper their corrections with judgment: corrections must not be so harsh as to discourage the dogs from working. Some recommended corrective measures are:

a. Running the dog or putting it through obedience exercise before each trial, to remove excess energy.

b. Recall the dog periodically, making it sit until it settles down before continuing.

c. Place a tripwire near the beginning of the lane. If the dog runs into it, it may be more cautious.

d. Let the dog trail the 25-foot leash. It will soon tire of the leash snagging or being stepped on by the handler.

71. Lack of Speed

A very cautious, or insecure, dog may work very slowly, sniffing everything in sight. On locating a target, this dog may check it from all directions, and stand a long time before making up its mind. Obviously, such dogs would delay a patrol's progress. Some recommended corrective measures are:

a. The handler may follow his dog more closely, giving the moveout command frequently.

b. When the dog is checking a possible target area the handler, rather than pausing at a distance, may take several steps forward and give the moveout command. This should cause the dog to make up its mind and either sit or move on.

c. The handler may recall his dog and then send it back to the target.

72. Pawing at Targets

Some dogs will paw or dig at a suspected target area. They may want to reassure themselves of the target's presence, or show their handlers that they have found something. This practice must

be corrected, since such a dog could detonate a mine or boobytrap. Calling the dog's name will usually make the dog stop pawing. If necessary, the handler commands NO.

73. Bypassing or Jumping Tripwires

Some dogs don't like tripwires, and may go to extremes to avoid them.

a. *Bypassing.* If a dog tries to go around tripwires this can be corrected by arranging three wires in a horseshoe, so that the dog cannot go forward, left, or right without running into one.

b. *Jumping.* Set multiple wires; e.g., wires at 6, 12, 18, and 24 inches, so the dog can neither go over or under.

74. Intersections

Where two trails or roads intersect, or a lane turns off, the handler needs to direct his dog. If the dog stops and looks back for instructions, the handler should stand facing in the desired direction and give the arm-and-hand moveout gesture. If a dog doesn't stop, or takes the wrong fork, the handler uses his whistle to get his dog's attention or recall it, then gestures in the desired direction.

Section VI. DETECTION—GRADE 3

75. Scope

a. During grade 3 detection training the handler learns—

(1) To set grade 3 ordnance, tripwires, and integrated lanes.

(2) The techniques of training his dog to rely on its nose.

b. The mine and tunnel dog learns:

(1) That it can no longer find targets entirely by sight.

(2) That ordnance and tripwires may be found on the same lane.

76. Ordnance—Grade 3 (Table 1)

a. *Buried.* After digging the hole and placing the target, refill so that only the top of the target is exposed. Cover the target with grass, leaves, or pine needles, leaving a 2- to 3-inch opening in the center (fig 44). Or, initially cut a cover plate, punch a 2- to 3-inch hole in it, and place the cover plate on the mine without sealing the

edges (fig 45). Remove most, but not all, traces of disturbance from the target area.

b. *Hidden.* Conceal the target at ground level so that about one fourth of it is visible when viewed from dog's-eye level. Or, conceal it in a log or tree in the same manner (fig 46).

c. *Elevated.* Eliminate the strings. Targets should be concealed in the forks or branches of bushes or on tree trunks, from 18 inches to 4 feet above the ground. Again, some of the target should be visible when viewed from dog's-eye level (fig 47).

77. Tripwires—Grade 3 (Table 2)

In the early stages of grade 3 detection training, separate tripwire lanes are used. When all dogs are successfully finding the new materials, tripwires will be integrated into ordnance lanes.

a. *New Materials.* Eliminate the white string (except that the first wire on a lane may be white string for problem dogs). Use green,



Figure 44. Grade 3—buried target.

brown, or sand-colored carpet thread (according to surroundings) and standard tripwire.

b. Use Varied Settings.

(1) *Angle settings (horizontal).* Vary the angle of the wire respective to the line of march.

(2) *Angle settings (vertical).* Vary the angle of the wire respective to the ground (fig 48).

(3) *Multiple settings.* Use two or more wires to form a V, and L, Horseshoe, or random shapes (fig 49 and 50).

78. Procedure

a. Lanes should be 300 to 500 meters.

b. When lanes are integrated, each lane of five to ten targets should include one to three tripwires.

c. Each time the dog makes a GR, BR, or MO, the target is removed from its concealment and shown to the dog before reinforcing with food.

d. If necessary, the person who planted a lane



Figure 45. Grade 3—buried target—alternate.

will accompany the team running it to confirm target locations. He must not, however, give any cues to the handler until the dog makes its response.

79. Performance Criteria

a. Handler.

(1) Must be able to properly set, and work his dog on, grade 3 integrated lanes.

(2) Must be able to give a patrol briefing prior to running a lane, when asked (app D).

(3) Must be able to control his dog with minimum use of voice commands.

b. Dog. Must achieve a good response (CR) average of 80 percent on all targets employed (except personnel) during grade 3 detection training.



Figure 46. Grade 3—hidden target.



Figure 47. Grade 3—elevated target.

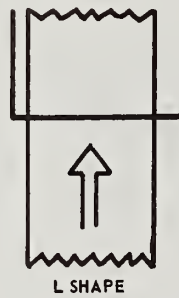
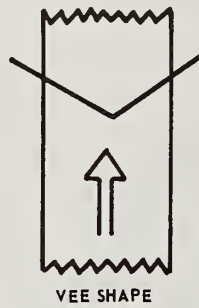


Figure 48. Type tripwire—1.



Figure 49. Type tripwire—2.

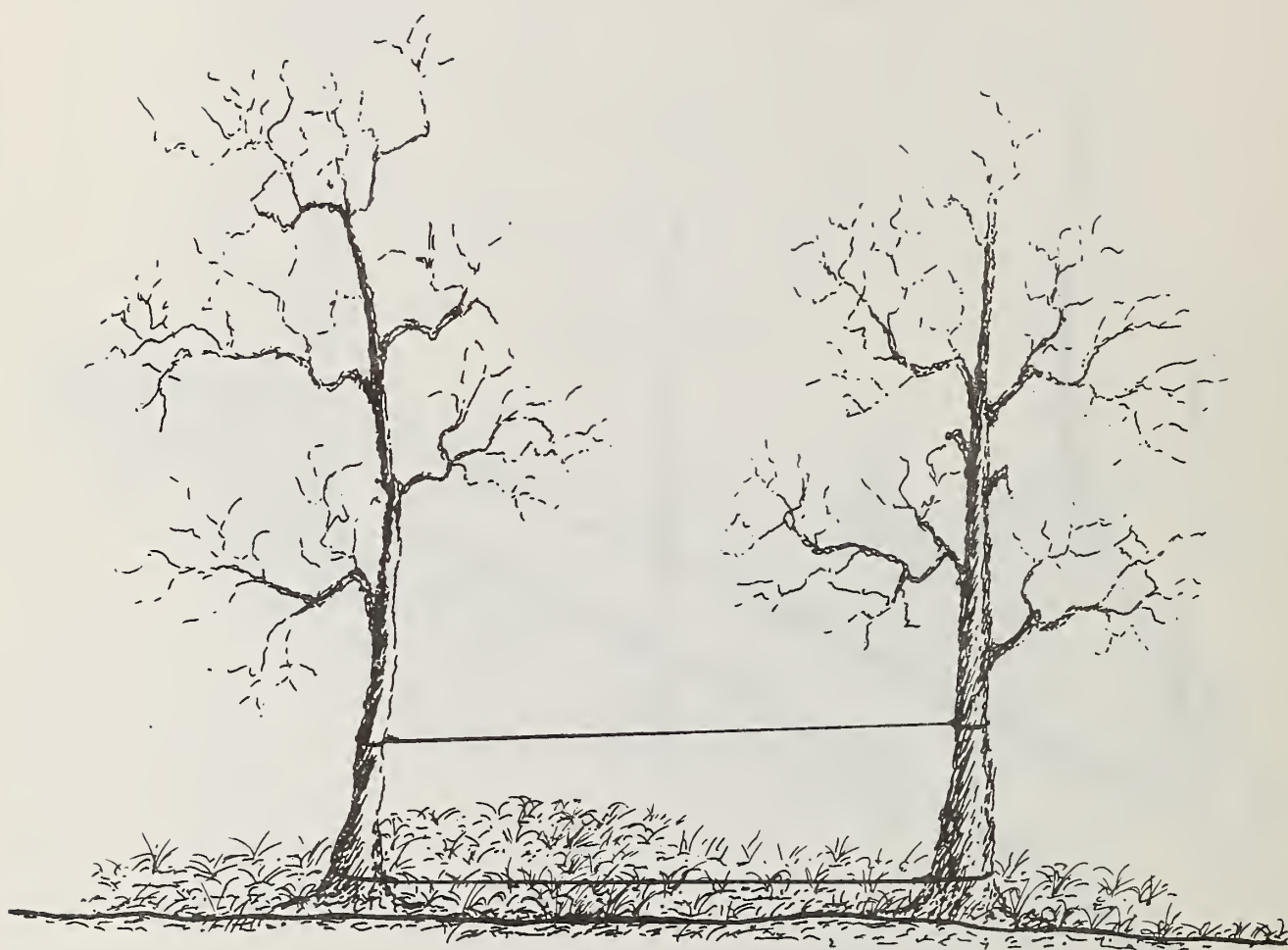


Figure 50. Type tripwire—3.

CHAPTER 6

ADVANCED DETECTION TRAINING

Section I. GENERAL

80. Scope

The handler and dog, as a team, will apply their previous training while being introduced to:

- a. Target grades 4 and 5.
- b. Tunnels and caches.
- c. Decoys.
- d. Road clearing problems.
- e. Open field problems.
- f. Cross-country problems.

81. Targets

In addition to all targets previously introduced, a final variety of targets and target locations should be added during this phase.

a. Some examples of different targets may include:

(1) Inoperative, electrical, pressure or friction-type detonators buried in roads and connected by wire to off-road devices.

(2) Plastic explosives molded to trees, posts, and like objects.

b. Examples of different target locations may include:

(1) *Underwater*. Mines or boobytraps placed in puddles, shallow streams, rice paddies, or swamps.

(2) *Vehicles*. Boobytraps placed in various locations on a damaged vehicle.

(3) *Fixed objects*. Fence, bridge abutments, railroad beds, and culverts.

82. Training Area

In addition to the network of lanes previously discussed, advanced detection training requires an area containing open fields and moderate to heavy forest or jungle. Where available, hills, ravines, and swamps should be used. Also, several dirt secondary roads and primary roads are required for road clearing.

Section II. DETECTION—GRADE 4

83. Ordnance—Grade 4 (Table 1)

Note. In terms of visibility, the practical distinction between target grades 4 and 5 is that in grade 4 the target area may be distinguished by very close scrutiny, whereas in grade 5 the target area should be completely undetectable to any but the most experienced human eye.

a. *Buried*. After digging the hole and placing the target, refill until the target is covered; then replace the cover plate. Press the cover plate down, but do not seal the edges. A faint ring around the cage should be visible (fig 51). Set aside any excess dirt (downwind) so it may be put back in the hole later. Carefully remove *all* visible traces of disturbance from the target area.

b. *Hidden*. Conceal as in grade 3, except that only a tiny portion of the target is visible from dog's-eye level (fig 52).

c. *Elevated*. Conceal as in grade 3, 2 to 5 feet above ground, except that only a tiny portion is visible to the dog.

84. Tripwires—Grade 4 (Table 2)

a. *New Materials*. Add light monofilament line and piano wire, if desired.

b. *High Settings*. Place wires 3 to 5 feet high.

c. *Low Settings*. Wires placed $\frac{1}{8}$ inch to 6 inches above the ground.

d. *Parallel Settings*. Parallel or off-trail wires are the most difficult for the dog. Set wires roughly parallel to the lane, 1 to 5 meters off-trail.

85. Procedure

a. Lanes should be 500 to 1,000 meters long.



Figure 51 Grade 4—buried target.

b. At least one third of all targets should be planted 1 to 5 meters off-trail, on the upwind side.

Note. When placing off-trail targets the person placing them *should not* move directly from a lane to the proposed target site. He should circle the area and approach the site from the opposite side (fig 53). This reduces the chances of a dog's tracking in to the target.

c. Lanes should continue to have five to ten targets, with greater dispersion.

86. Performance Criteria

a. *Handler.* No change from grade 3 *except* handlers should now be able to control their dogs entirely by arm-and-hand gestures and whistle; voice should be used only in extreme circumstances and when whispering praise to the dog.

b. *Dog.* The dog must achieve a good response (GR) average of 80 percent on all targets employed (except personnel) during grade 4 detection training.



Figure 52. Grade 4—hidden target.

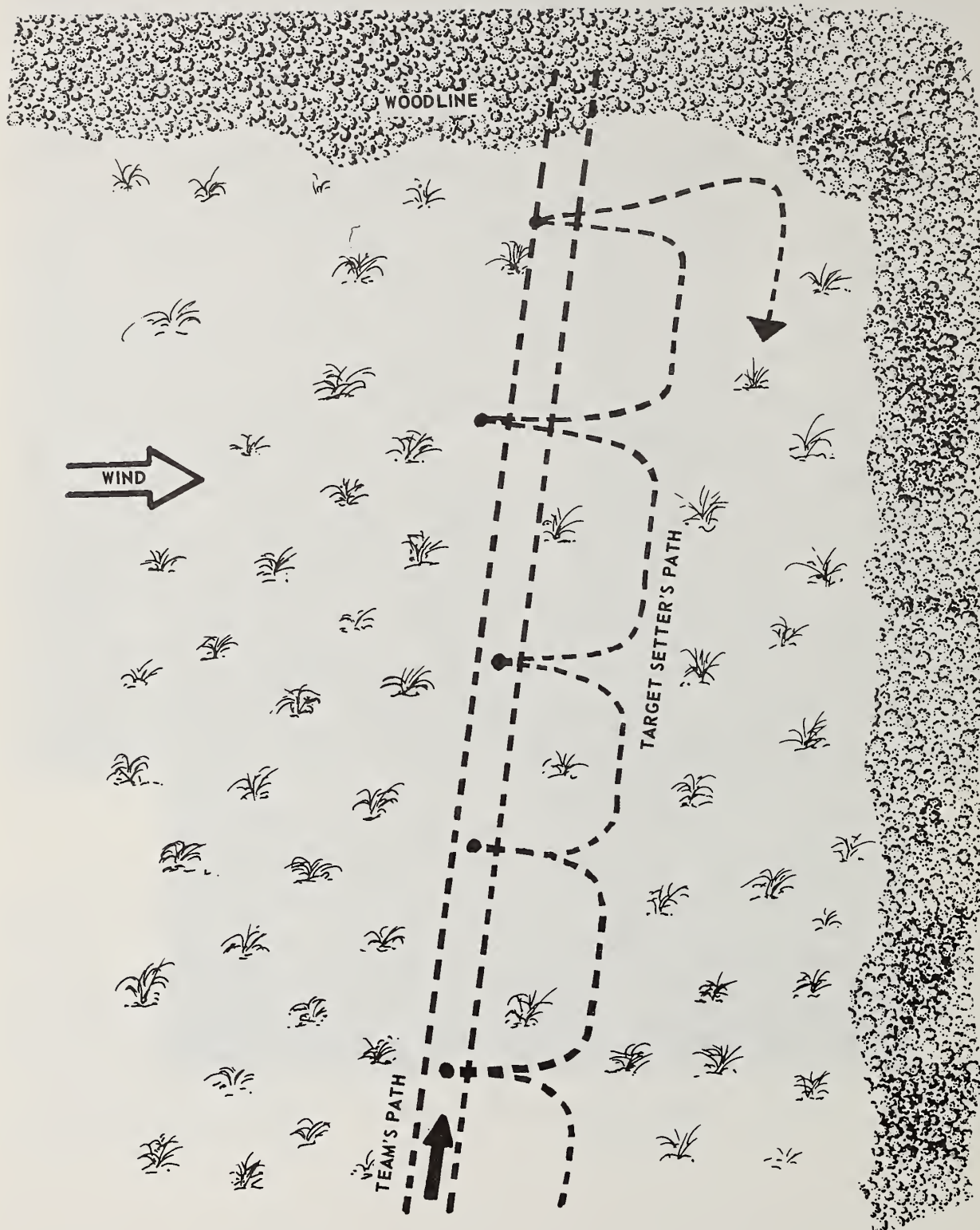


Figure 53. Target setter's path.

Section III. DETECTION—GRADE 5

87. General

During grade 5 detection training maximum effort and imagination are used to conceal targets. Targets must be made as difficult to locate as is tactically reasonable.

88. Ordnance—Grade 5 (Table 1)

a. *Buried*. Repeat grade 4 procedure, except seal around the cover-plate so that there are no visible traces.

b. *Hidden and Elevated*. No portion of the target is visible from the direction of approach.

89. Tripwires—Grade 5 (Table 2)

Same as grade 4, except that vines may be added. Use maximum ingenuity in tripwire settings.

90. Procedure

a. Lanes should be 1,000 to 2,000 meters long.

b. Some lanes should be run with only one to three targets.

91. Performance Criteria

Same as required of handler and dog in grade 4 detection training.

Section IV. TUNNELS, CACHES, AND DECOYS

92. Scope

This training exposes the mine and tunnel dog team to those classes of targets, other than ordnance and tripwires, that they may expect to encounter on operations. This training is discretionary and should be adjusted according to anticipated operational needs.

Note. The training outlined in paragraphs 92 through 107 is conducted concurrently with grades 4 and 5 detection training.

93. Tunnels

This term *tunnels* refers to all hole-like targets, such as tunnels, bunkers, mantraps, and covered foxholes or spiderholes. For training purposes, the above can be simulated by digging holes about 1 foot wide and 1 to 3 feet deep, and covering them with a light screen of grass, twigs, and leaves. Dogs should respond as they do to other type targets. It is desirable to disturb the earth in the hole before each use. An article of recently worn clothing may be placed in the hole before it is used.

94. Caches

This term refers to any item(s) of military equipment hidden at, above, or below the ground. Typical items are: weapons, ammunition, or web gear. Food stuffs may also be stored in caches.

95. Procedure

a. Introduce tunnels and caches by integrating one of them on a grade 4 lane.

b. Periodically, add one or more tunnel- or cache-type targets to a problem.

c. For those dogs that fail to recognize these items as targets, or fail to respond to them, the orientation procedure may be necessary. These dogs can be taught to orient on these targets as they did on the feed pan.

96. Decoys

a. Although the mine and tunnel dog is not expected to perform the scout dog function, and indeed must restrict its attention to its immediate environment, personnel will be encountered on some operations. The dogs must be taught to alert on an occasional decoy, and that they are rewarded for doing so.

b. The instructors must take care that decoys aren't used too often. Since a strange person is more interesting to a dog than a mine, the procedure must be used only to the extent that the dogs are aware of decoys. Otherwise they will neglect their primary task while searching for the decoys.

97. Procedure

No special training is required. On every third or fourth problem, a decoy should be placed toward the end of the lane, 10 to 15 meters off-trail on the upwind side. Nearly all dogs will give an alert on picking up the scent.

Section V. ROAD CLEARING PROBLEMS

98. General

Mine and tunnel dogs have proven to be a valuable combat asset on road clearing operations. Dogs in combination with engineer mine detector teams provide the best insurance against mines.

99. Requirements

Road clearance problems should begin on secondary dirt roads about 15 feet wide. As the dogs progress, training can be moved to 30-foot wide roads. If available, the dogs can be worked on hard surface roads.

100. Roads 15-Foot Wide

Road clearing problems can be conducted in the same manner as training lanes. Antitank mines are placed in the roadbed, or boobytraps may be placed along the roadside. Depending on wind direction and the instructor's judgment, the dogs may work in their individual search patterns,

or the handlers can work their dogs along the downwind edge of the road.

101. Roads 30-Foot Wide

a. Due to the greater area to be covered, it is usually necessary to work the dog in a zigzag pattern, unless there is a good crosswind. For those dogs that normally work in a fairly straight line, targets may be emplaced in a left-right-left pattern, so the dog will have to zigzag.

b. In some operations, minesweep teams may work on the road, while mine and tunnel dog teams work along the roadside. On some problems the dogs should be worked along the downwind side of the road or off the road, with all targets on that side.

102. Hard Surface Roads

On these roads, if there are mines beneath them, dogs will most likely be unable to detect anything. Again, the dogs are worked along the downwind side of the road or off the road.

Section VI. OPEN FIELD PROBLEMS

103. General

All operations using mine and tunnel dog teams will not be conducted on road and trails. Since the team must operate wherever the infantry is, the dogs must be able to work open fields.

104. Requirements

A good training area for these problems would be a relatively level, grassy field, approximately 1,000 by 3,000 meters, bordered by woodlines. The field should contain some bushes and trees.

105. Procedure

a. Introductory problems should be limited to short (200 to 300 meters) straight-line lanes.

b. There should be no discernable path across

the field for the dog to follow. The handler will be given a terrain feature to guide on, and will work his dog toward that point.

c. Dogs should be encouraged to work 50 to 75 meters ahead of their handlers.

d. Personnel setting targets must not walk on the route the team will follow. They should move on a parallel track, 5 to 10 meters downwind, and turn in to place their targets.

e. When working their dogs, handlers must be reminded that the so-called "safe lane" cleared by their dogs consists only of that ground their dogs have walked over (fig 54). Under most operational conditions, this "safe lane" is considered to be 3 to 4 meters wide, upwind of the line of march, unless the dog can be worked in a wide zigzag pattern (fig 55).

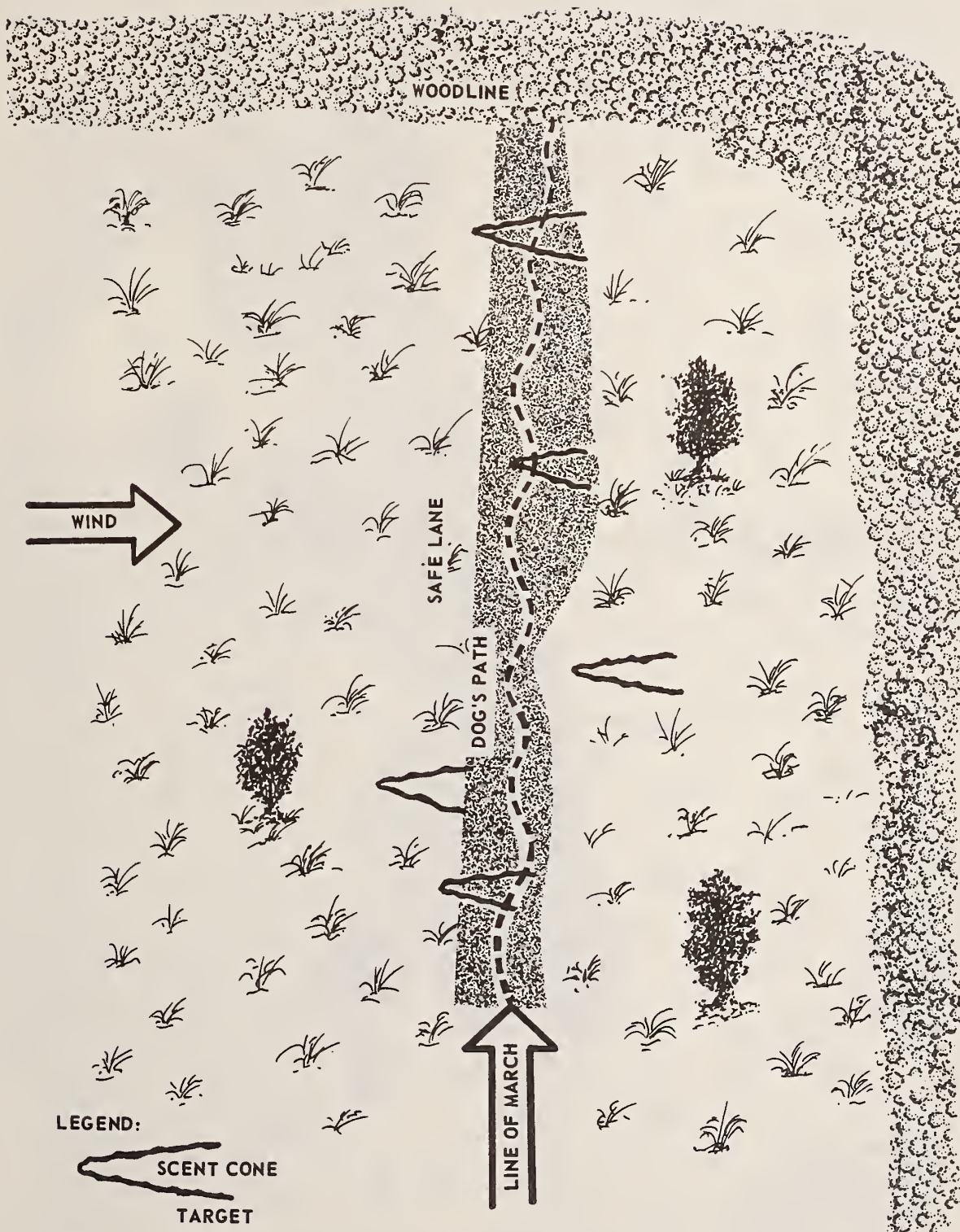


Figure 54. Safe lane—narrow pattern.

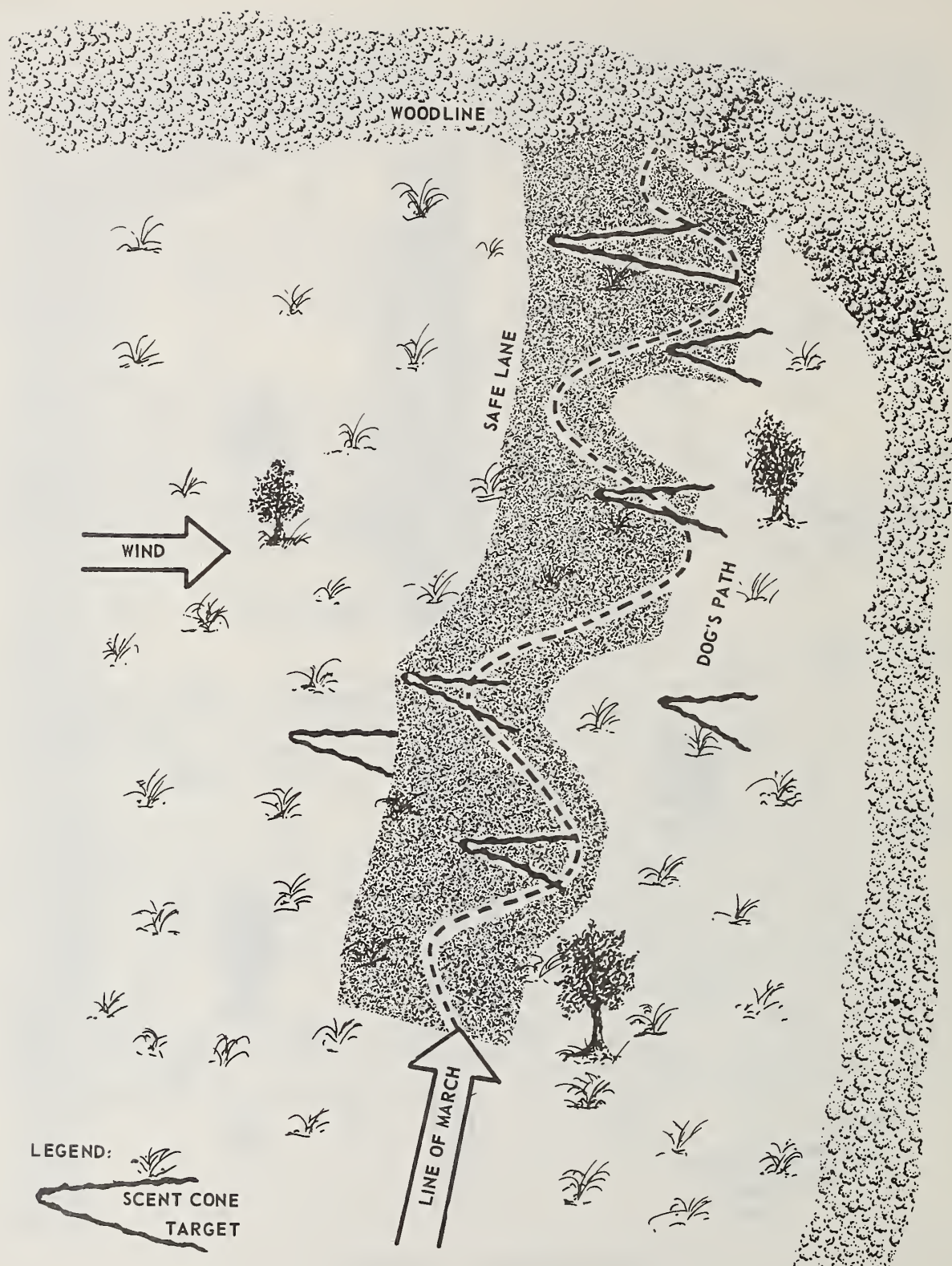


Figure 55. Safe lane—wide pattern.

Section VII. CROSS-COUNTRY PROBLEMS

106. General

Cross-country problems are the most difficult to set up and to run. They should include all types of targets the teams have trained on.

107. Procedure

a. Problems initially should be short (200 to 300 meters) lanes through the woods. This phase should culminate with problems of several kilometers, over difficult, varied terrain.

b. Instructors must insure that the route is marked in some manner, and that target locations are carefully recorded. This allows the team to pass near all targets, and insures that the ordnance is recovered.

c. Lanes may contain any number of targets. Target selection should include at least one example of every class of target the dog has been trained to detect.

d. A typical problem might begin with a short

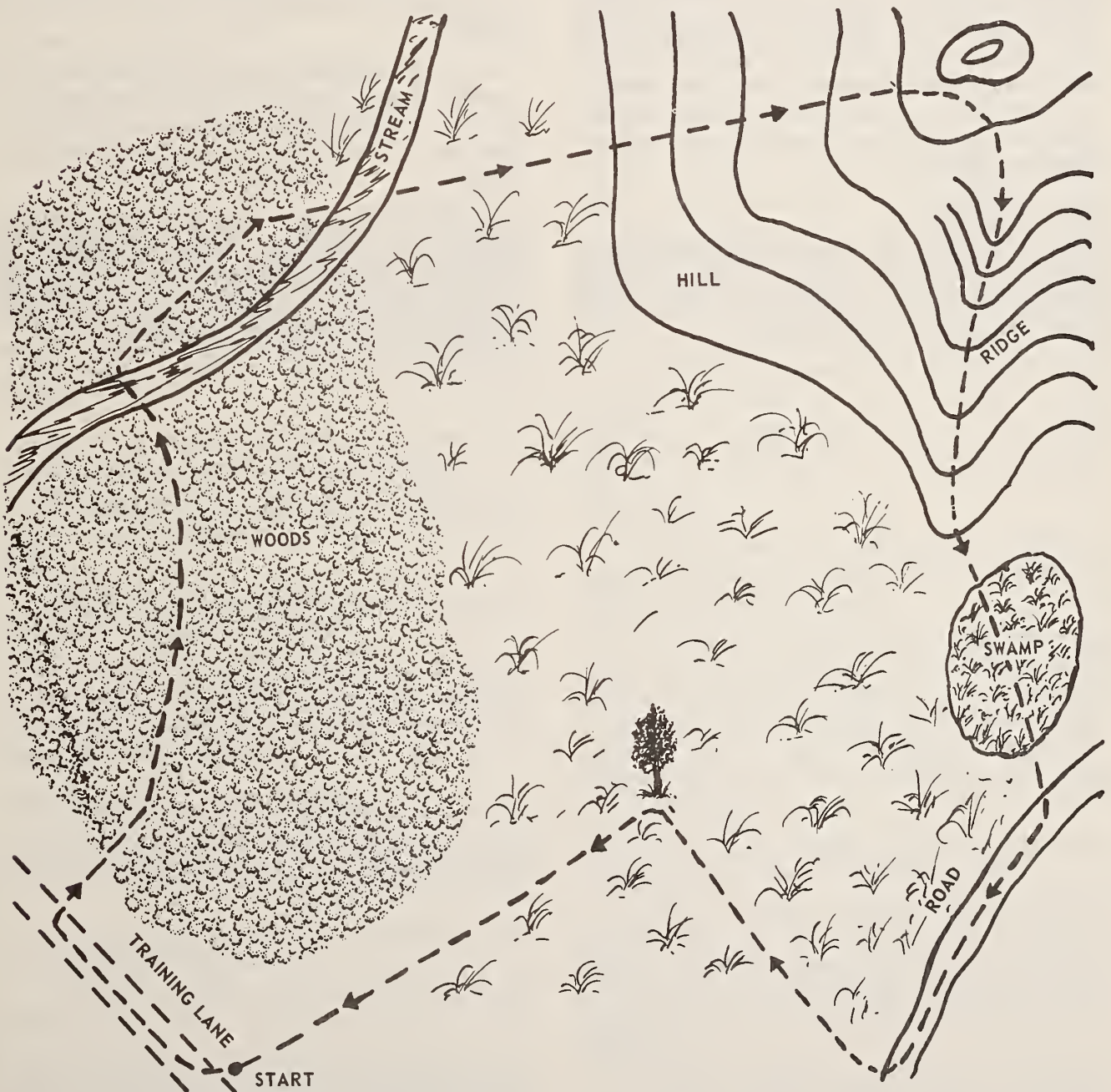


Figure 56. Cross-country problem.

grade 5 lane, cut through the woods, across a stream, over a hill, along the top of or over a ridge, across an open field, through a swamp, and end with a section of road to clear (fig 56).

Section VIII. SUMMARY

108. Integrated Support Training

During advanced detection training mutual benefit can be gained by having the student teams support the problems of various leader courses. Problems which can be supported include: ranger problems, escape and evasion exercises, field training exercises, squad, platoon, or company tactical patrols, and classes in countermining measures. Such integrated training allows the handlers to gain experience in supporting infantry unit operations and gives leader course students experience in the proper employment of mine and tunnel dog teams.

109. Conclusion

Prior to the final field performance examination, operational readiness training test, or Army training test, mine and tunnel dog teams should be able to accomplish the following:

e. Handlers are again reminded of the "safe lane" area. They should walk where their dogs have walked, and allow their dogs to lead them around targets.

a. Handlers should be able to give a clear, concise patrol briefing.

b. Handlers should be able to effectively employ their dogs over all type of terrain.

c. Mine and tunnel dogs should give a natural alert on personnel hidden on, above, or below the ground.

d. Mine and tunnel dogs should give a sit alert (within 2 to 3 feet) on at least 85 percent of all types of ordnance, tripwires and boobytraps, remaining in position until recalled by their handlers.

e. Mine and tunnel dogs should work well in front of their handlers (10 to 100 meters, depending on terrain), remaining under strict control, and should be able to safely guide their handlers around tripwires or boobytraps.

CHAPTER 7

EMPLOYMENT

Section I. GENERAL

110. Organization

Mine and tunnel dog teams may be organized into squads or sections of:

- a. Composite tactical dog platoons.
- b. Composite tactical dog companies.

111. Restatement of Mission

The mine and tunnel dog team mission is to support infantry, combat engineer, and combat support type units in tactical operations against hostile forces by detecting and giving warning of casualty-producing devices that the supported unit(s) may encounter. Specific tasks that mine and tunnel dog teams are capable of performing include:

- a. Assisting a patrol infiltrating an enemy area by locating minefields or boobytrapped areas.
- b. Providing, during movement, early detection of casualty-producing devices along the route.
- c. Assistance in searching villages or built-up areas for boobytraps or supplies.
- d. Assistance in searching objectives or camps for boobytraps, and caches of weapons, ammunition, equipment or food (including detection of concealed tunnel entrances).

112. Capabilities and Limitations

a. A mine and tunnel dog team's detection and warning capabilities are the combined results of:

(1) The dog's training and superior scent and hearing faculties.

(2) The handler's ability to work and read his dog.

b. A well-trained, physically fit, properly employed mine and tunnel dog team *usually* can detect current or recent foreign presence outside the main body of a patrol before other patrol

members; e.g., through the detection of *recent* human presence the dog can warn of boobytraps dangerous to a patrol well ahead of their detection by patrol members.

c. Besides human presence, a mine and tunnel dog team can *usually* detect:

(1) Caches—A mine and tunnel dog regards the scents of food, weapons, or equipment as foreign and alerts on any of these scents.

(2) Tripwires—A mine and tunnel dog alerts by smelling, seeing, or hearing a tripwire (even though the human scent of the installer has dissipated, the vibrations of a wire may produce sounds that are audible only to a dog).

(3) Mines, boobytraps—A mine and tunnel dog may recognize the distinctive scents of the explosives or other components of the devices (e.g., in the case of mines, freshly turned earth) and alerts on these scents, even in the absence of human scent.

d. A mine and tunnel dog team realizes its fullest potential when wind conditions permit the dog to work on airborne scent.

e. A mine and tunnel dog's detection capabilities are reduced when there is little or no wind, when the wind is from the rear, in areas of excessive noise or movement, and by unfavorable weather or terrain conditions (e.g., rain, smoke, fog, dust, dense undergrowth, heavy woods, or jungle).

f. A mine and tunnel dog requires water more frequently in greater amounts than a man.

g. Except for water requirements, a mine and tunnel dog's need for rest and food, and its reactions to climatic extremes, compare to those of a man, i.e., its effectiveness declines as it becomes fatigued, hungry, thirsty, overheated, or very cold.

h. Fatigue suffered by the dog, and physical fatigue and mental stress bearing on the handler, limit maximum effective performance as a

mine and tunnel dog team. (Reserve mine and tunnel dog support, to permit periodic rotation of working teams, is desirable for patrols where the requirements for continuous support exceeds the expected performance limits.)

i. Proper use of a mine and tunnel dog team may reduce the speed at which a patrol could otherwise move. For example, unless a patrol is moving directly into the wind, with favorable weather and terrain conditions, a mine and tunnel dog team, to work effectively, usually must move left and right of the patrol's line of march, with forward speed reduced in proportion to the amount of left and right movement required.

j. Occasionally a mine and tunnel dog is a slow worker, even in favorable circumstances, and may unduly reduce a patrol's speed of movement.

k. All alerts *must* be interpreted by the handler and all of them may require checking by the patrol (an action that may be very time consuming) because the team's job ends when the dog has indicated the presence of an object.

l. The necessity for a handler to concentrate his attention on his dog's actions prevents him from protecting himself and his dog. When ahead of a patrol (the team's usual position), a dog team is highly vulnerable to enemy fire. Therefore, at least one patrol member must be assigned to protect each working team during operations.

113. Planning and Preparation for Use of Mine and Tunnel Dog Teams

a. When an infantry tactical dog unit is attached to a tactical unit, normally brigade size or larger, the unit commander advises and makes recommendations to the commander of that unit concerning the employment of his mine and tunnel dog teams. When mine and tunnel dog teams are employed with units that have not previously used them, personnel of these units will be briefed on the team's capabilities and limitations. This is absolutely necessary to the team's success in combat since unit commanders may not be familiar with the proper methods of employing mine and tunnel dogs.

b. Unlike scout dog teams, which are normally attached for periods of time, mine and tunnel dog teams are normally attached on a mission basis, i.e., when a single mission or tactical situation calls for employing mine and tunnel dogs, a team(s) is dispatched for that mission.

c. Prior to assignment to any operation the infantry tactical dog unit commander or his re-

presentative is carefully briefed on planned missions as far in advance as possible. This allows him time to select teams that have worked with the supported unit before and/or those teams which will be most effective for a particular mission. It also allows the handlers time to prepare themselves and their dogs; for example, checking the dogs out for any physical handicaps that might limit their effectiveness on the operation, exercising their dogs to relieve excess energy from being kenneled, and running their dogs on short training patrols to stimulate their interest and to verify their proficiency.

d. The supported commander should especially seek to obtain mine and tunnel dog support for his patrols when—

(1) They expect to encounter minefields or boobytraps on the operation.

(2) Other mine detection means are ^{not} available or unsuited for the mission.

e. On reaching the decision that mine and tunnel dog support is both desirable and practicable, the supported commander will—

(1) Determine the number of teams desired, including reserve support if periodic rotation is required.

(2) Seek to obtain a team(s) that has previously worked with his unit and arrange for the team(s) to join the patrol in time to hear the warning order.

(3) Obtain the handler's recommendations for the most effective employment of the team; for example, best working position, and selection of a route which, consistent with other factors, allows the team to operate most effectively.

(4) Include his detailed plan for the team's employment in the patrol order.

(5) Insure that his men know that mine and tunnel dog support is a *supplement* to patrol security and an *aid* when searching for casualty-producing devices, *not* a substitute for the patrol's own security measures.

(6) Insure that his men know and, in their association with mine and tunnel dog teams, strictly observe these precautions:

(a) They must not—

1. Feed a dog. Feeding by the handler *only* is a part of a dog's training.

2. Play with or pet a military dog, except for familiarization—and then only under the handler's direct supervision. A handler's petting of and playing with his dog also is a part of the dog's training.

3. Make any move or gesture which a mine and tunnel dog may interpret as a threat to its handler. Although not specifically trained to defend their handlers, most mine and tunnel dogs develop a protective attitude toward them.

(b) When taking cover, patrol members must never jump on top of or too close to a mine and tunnel dog or its handler because the dog may react defensively.

(7) Integrate the team fully into the tactical unit to include participation in inspections and rehearsals in order to—

(a) Thoroughly familiarize the handler with the entire plan of operation.

(b) Help familiarize the dog with the scents of individual patrol members and with the sounds and motions of the patrol.

(c) Help familiarize unit members with the team's methods of operation.

(d) Insure that the team is properly prepared; for example, the handler camouflages himself and his equipment and tapes or wraps metal parts of the dog's working harness to eliminate unnecessary noise.

(e) Insure proper support for the team; for example, designation, if required, of unit members to carry extra water and/or food for the dog and assignment of one or more patrol mem-

bers to provide the team security while it is working.

f. Before an operation the mine and tunnel dog handler will—

(1) Brief the tactical unit on the team's capabilities and limitations, the temperament of the dog, and any items of special interest pertaining to the team.

(2) Explain and demonstrate the team's various methods of operation (as pertinent to the tasks to be performed).

(3) Scent-familiarize the dog with *each* unit member.

(4) Allow men who have not previously worked with mine and tunnel dogs, particularly those who are apprehensive, to touch and stroke the dog to show them they need not fear it.

g. It is in the commander's interest that the mine and tunnel dogs available to him are familiar with every known device or object(s) his unit may encounter. Although the dogs receive continuous daily maintenance training when not on missions, the handler's access to these items is limited. A good practice is for supported units to provide, when possible, samples of any new or different device encountered in the field so that the dogs become familiar with them.

Section II. TYPES OF EMPLOYMENT

114. Employment of Mine and Tunnel Dog Teams During Movement

a. Generally, the best position for the mine and tunnel dog team is directly in front of the patrol. The team moves ahead of the patrol or screening element, keeping on the assigned direction of movement. Wind conditions may dictate that the team move on the windward side of the route of advance to take maximum advantage of the dog's senses of smell and hearing.

b. On a *reconnaissance* or *combat* patrol where infiltration of hostile lines is desired the mine and tunnel dog can be useful in alerting friendly forces to locations of enemy minefields or booby-traps.

c. On all patrol actions one member of the patrol should be assigned the mission of protecting the handler and dog.

d. The distance at which the dog may alert depends on the weather and terrain. It may be 50 meters or it may be 3 feet. Once the dog alerts the handler should signal the patrol to halt (usually by getting down), and wait for the patrol

leader to move up (on the side opposite the dog) to receive information on the alert. If contact is to be made, the handler, instead of moving at the patrol's rear, should simply remain in place to allow the patrol to pass through his position; then he falls in at the rear. This procedure eliminates unnecessary movement and risk to the mine and tunnel dog team and to patrol members. In the event that a firefight develops, and the team is at the point position, it should remain in place. When possible, it should move to the center of the patrol or to a position which would least interfere with the patrol's fire.

e. The most ideal conditions for working a mine and tunnel dog are found in sparsely inhabited areas with few distractions.

115. Employment of Mine and Tunnel Dog Teams With Mechanized Units

Pending the final development of electronic remote control equipment (and doctrine for its employment), employment of mine and tunnel dog teams with mechanized infantry will be re-

stricted to several areas. Obviously, dismounted mine and tunnel dog teams couldn't keep up with tracked vehicles during rapid movement or in many offensive situations.

116. The Offense

If mine and tunnel dog teams are employed with mechanized infantry in offensive operations, they will normally ride in or on the vehicles, as dictated, and may be effectively employed in one or more of the following roles:

a. The mine and tunnel dog team and its security element may dismount to check suspicious areas or obstacles, especially where there is danger of mines.

b. Mine and tunnel dog teams may work dismounted for short periods where natural man-made obstacles, weather, or terrain restrict forward speed to a minimum.

c. When confronted by a river or stream, and the tactical situation permits, the dog can be directed to the far side to check for mines or boobytraps.

117. Employment of Mine and Tunnel Dog Teams With Airmobile Units

Experience has shown that mine and tunnel dogs can effectively be employed with airmobile infantry in most airmobile operations.

a. *Transportation by Helicopter.* Whether on an operation or when being transported by helicopter, there are a number of rules which the handler must follow:

(1) The mine and tunnel dog must first be accustomed to riding in ground vehicles.

(2) Dogs must be muzzled prior to entering the aircraft.

(3) If more than one team is on an aircraft, they should be separated as much as possible.

(4) Dogs should sit between and/or behind the handler's legs (fig 57). During movement, the dogs should be encouraged to lie down.

(5) Dog teams should board the aircraft last and exit first.

(6) Although the dogs may have to be helped aboard at first, most dogs are soon able to jump on and off by themselves. Although most dogs enjoy riding helicopters, some may become overeager to exit the aircraft as it approaches the ground. Handlers must exercise caution to insure that their dogs don't jump off until it is safe to do so.

b. *Employment.* In addition to normal employment on the ground, there are a number of specific means of employing mine and tunnel dogs on airmobile operations:

(1) A mine and tunnel dog can be rappelled to the ground to check a landing zone for mines or boobytraps.

(2) Mine and tunnel dogs can quickly check a landing zone as the supported personnel are dismounting and deploying.

(3) Mine and tunnel dogs can check a potential pickup zone for mines or boobytraps.

118. Casualty Procedure

There are a number of specific procedures which must be followed should a handler or dog sustain injuries in combat.

a. A wounded or injured handler is treated according to the supported unit's casualty plan.

(1) If a handler is to be left for later evacuation, his dog will remain with him.

(2) If a handler is to be evacuated by the patrol, a member of the patrol should be detailed to lead the dog on leash to the pickup point. If this is not possible, the dog may be turned off leash, as most dogs will follow their handlers.

Caution. Under no conditions should a member of a supported unit attempt to work the dog.

b. Some dogs may become overly defensive and try to prevent anyone approaching their handler to administer first aid. In this situation every effort should be made to get the dog away from the handler so that he can be treated and evacuated. Several suggested methods are:

(1) Coaxing the dog away with friendly words or food.

(2) Throwing a poncho over the dog to immobilize it.

(3) Roping and tying the dog.

c. If none of the above works, or if the tactical situation or nature of the handler's injuries doesn't permit the above, then the dog **MUST** be destroyed. **NO MATTER HOW VALUABLE THE DOG MAY BE, HUMAN LIFE ALWAYS TAKES PRECEDENCE.**

d. If a dog is wounded or killed, it is evacuated under the same conditions as a human would be evacuated. The handler *always* accompanies his dog.

119. Maintenance Training

a. There is only one proven means by which the mine and tunnel dog's proficiency can be maintained at the level necessary to make it effective in combat: *practice*. For this reason, the infantry tactical unit commander must have a maintenance schedule for dogs just as he does for other equipment. Ideally, every day that the mine and tunnel dog team is not on an operation, the dog should be worked on a training problem. A secondary purpose is to insure that the dog maintains the association between work

and food. If they receive food without work, they may lose interest in working.

b. It is especially important for the team to run a practice lane the day prior to a mission.

c. Except for combat emergencies, *the handler has no excuse for not maintaining his dog's proficiency*. Even on a remote patrol base, the handler can obtain a few hand grenades and plant them for a short practice run.

d. The mine and tunnel dog is a valuable combat asset only if it receives constant practice.



Figure 57. Mine and tunnel dog team in HU1D.

APPENDIX A

REFERENCES

AR 700-81	DOD Dog Program.
FM 8-35	Transportation of the Sick and Wounded.
FM 20-20	Basic Training and Care of Military Dogs.
FM 20-32	Landmine Warfare.
FM 21-50	Ranger Training and Ranger Operations.
FM 21-75	Combat Training of the Individual Soldier and Patrolling.
FM 31-22	US Army Counterinsurgency Forces.
FM 31-35	Jungle Operations.
ATP 7-167	Infantry Platoon (Scout Dog) (TOE 7-167).
ASubjSed 7-39	Infantry Platoon (Scout Dog) (TOE 7-167).
ATT 7-167	Infantry Platoon (Scout Dog) (TOE 7-167).

APPENDIX B

MINE/TUNNEL DETECTION (DOG/HANDLER) SCORESHEET*

HANDLER_____

DATE:_____

DOG_____

TRAIL_____

[illegible]

REMARKS:

*Note. Scoresheet will be locally reproduced.

APPENDIX C

LIST OF ABBREVIATIONS

1. Concealment Grade (Ordnance) = GO-1
GO-2
GO-3
GO-4
GO-5
2. Concealment Grade (Tripwire) = GT-1
GT-2
GT-3
GT-4
GT-5
3. Type Concealment: Hidden (ground level) = H
Buried = B
Elevated = E
Deadwood = D
4. General Abbreviations: Tripwire = TW
Hand Grenade = HG
Type ordnance = TO (e.g., TO-81-mm,
TO-M16A1)
5. Dog Responses: Good response = GR
Bad response = BR
False position = FP
Missed object = MO

APPENDIX D

MINE AND TUNNEL DOG HANDLER PATROL

BRIEFING GUIDE

1. INTRODUCTION

- a. Assemble all patrol members so that they can see and hear all instructions and demonstrations.
- b. Identify yourself and your dog (names and unit).

2. CAPABILITIES AND LIMITATIONS

a. Capabilities.

(1) The dog is trained to detect and respond by sitting within 3 feet of mines, boobytraps, tripwires and other casualty-producing devices.

(2) The dog can detect caches and tunnels. Although not specifically trained for it, the dog may detect and alert on personnel.

(3) The dog's alertness and senses of smell, sight, and hearing are superior to those of a human. It can detect the presence of people or objects far better than any human can.

(4) A dog team should work point whenever possible for better performance and to lessen the possibility of interference with the team's work.

b. Limitations.

(1) The dog should be worked only by a qualified handler.

(2) If speed is essential, the team can still work until the speed renders the dog ineffective. At this point the team should be moved to the rear.

(3) During contact, a dog team does not join the attacking or enveloping elements.

(4) Wind is the most important factor in the dog's work; its ability to alert will vary according to wind velocity and direction, concentration of human scent, humidity, density of terrain, and distractions in the area.

(5) Never split a dog team.

(6) If the dog is wounded, it should be evacuated as would a human casualty.

(7) If I am wounded and the dog becomes so aggressive as to prevent first aid, AS A LAST RESORT IT MUST BE DESTROYED.

(8) A DOG TEAM IS NOT A SUBSTITUTE FOR NORMAL SECURITY.

(9) I will need one man assigned as security, since I must concentrate on the dog and may need both hands to control it.

(10) In hot weather, extra water must be carried for the dog.

c. Cautions.

(1) DO NOT PET THE DOG: Although the dog is nonaggressive, petting may make it playful and cause it to lose interest in working.

(2) DO NOT FEED THE DOG: It is trained to accept food from me only when it has found something. If given free food, it may lose interest in working.

(3) When taking cover during contact, do not jump on or too close to the dog, as it may bite.

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